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Original Articles

SOME THERAPEUTIC POSSIBILITIES OF BILIARY FISTULAS *

L. L. McARTHUR, M.D.
CHICAGO.

Some observations which I have made during the convalescence of my patients from gallstone operations have appeared to me worthy of recording. While this communication is designed as a suggestive and preliminary one, enough has been done clinically to warrant its presentation on this occasion.

In practically every case of operation for gallstone the operator establishes a temporary biliary fistula, either of the gall bladder or the common duct, the purpose being to relieve the cholemia, cholecystitis, or cholangioitis by continuous drainage in much the same way as a urinary cystitis is relieved. Such treatment has proved to be the most efficient yet devised. To hasten the cure some have added to this simple drainage a daily lavage of the gall bladder with an alkaline mildly antiseptic solution. The loss of much of the fluid used for irrigation, frequently observed during such a lavage, naturally suggested the idea of studying the effects of various fluids introduced thus into the duodenum. So striking have some of these been that I desire to call attention to them, as well as to urge their further study by the members of this Section.

First, as a means of deluging the system with water, the temporary fistula many times can be utilized with surprising advantage. I have repeatedly injected in such cases, by continuous irrigation of a warm sterile normal salt solution, 500, 1,000, 3,000 c.c. of fluid, first as an experimental observation, then as a means of flushing out the kidneys, or clearing up a jaundice, or filling up the blood vessels, and in one case even added dextrose as supplying the food calories most easily assimilable.

TECHNIC

In every gall-bladder drainage, a tube is inserted and is held in place by absorbable purse-string sutures, the latter inverting the gall-bladder wall in such a way that when the tube is withdrawn peritoneal surfaces come in contact and the fistula heals. These purse-string sutures make the closure of the gall bladder around the drain practically hermetic for the first few days. To provide, however, against accidental leakage into the abdomen, some temporary protective drain, such as Bullitt, of Louisville, devised, is employed for added safety. If, now, with such a tube, through which the bile has been flowing, thus demonstrating the duct as patulous, we connect the tube of an irrigator containing, for example, normal salt solution, rate of flow being graduated not to exceed five or six drops per second, and the pressure to be not more than twenty inches elevation, continuous flow into the duodenum can be established and maintained without discomfort to the patient. Too rapid flow, or too high pressure, will quickly produce pains simulating mild biliary colic and might deter one from using this procedure, if not cognizant of these facts.

When large quantities of fluids have been thus introduced there has been observed a slowing of the pulse with a filling out of the vessels, a loss of thirst, a moistening of the tongue, and skin, a surprisingly rapid increase in the urinary output (patients complaining of the frequency of urination) and even edema of the feet in a patient lying on an inclined bed.

In the case of the gall bladder, the patulous character of the cystic duct can be determined after the insertion of the drainage-tube before closure of the abdomen by the use of a small glass syringe filled with sterile salt solution. When I have to utilize the common duct drainage I have never tried this procedure until the second or third day, by which time, if leakage occur, it finds itself confined to the space walled off by the prophylactic gauze drain inserted for such an emergency and escapes externally.

In chronic obstructive jaundice we frequently meet an associated nephritis, probably incident to the toxic effects of the cholemia. In just such cases, especially after an ether anesthesia (which, by the way, should now always be discarded for the gas and oxygen) there is imminent danger of an urinary suppression. Under these conditions I have sometimes found it possible to start promptly an active secretion of urine, minimizing thus the patient's dangers.

I am likewise confident that I have been able to dissipate a chronic jaundice far more promptly than it is dissipated when simple drainage alone is used. Moreover, I believe that I have noted the prompt subsidence of a persistent postoperative biliary vomiting on flushing the duodenum with an alkaline salt solution through the biliary fistula, after other methods had been exhausted. Theoretically, a mildly acid fluid in this location is the normal stimulus to contract the relaxed pyloric sphincter; hence I am at a loss for the explanation. Sometimes the fluid has appeared in the vomitus, thus washing out the stomach; sometimes it seems to start up normal peristalsis and disappear in the intestines.

To speculate here on the many interesting problems this avenue of approach suggests would lead too far afield, but, just as appendicostomy has done much for the treatment of chronic ailments of the large intestine, so biliary fistula offers suggestive possibilities for renal, duodenal and small intestine therapy. When one compares the difficulties and dangers which attend the mak-

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

ing of a duodenostomy or jejunostomy with that of a temporary gall-bladder fistula, it will readily be seen how much easier of production, freer from infective complications, and surer of prompt closure the cholecystostomy is.

I have refrained, therefore, from any but the practical points gleaned by actual experience, leaving for another time the citation of specific cases, varied medications, and statistical results. It should not be inferred that I have ignored the other means at hand, such as hypodermoclysis, intravenous injection or continuous rectal irrigation. My aim is simply to call attention to an added means of accomplishing an end, when, for one reason or another, in a case of cholecystostomy or choledochotomy those already at hand can not be employed. I am absolutely convinced that nowhere in the alimentary tract is absorption so active or so normal. Nor do I wish to be understood as using this route for the instillation of fluids when there is no indication for it, or as claiming that it can be successfully utilized in every gall-bladder or common-duct drainage. Certainly there are cases in which the common-duct opening or cystic canal is so narrow that fluids thus instilled pass so slowly through as to be of little value as a source of water-supply to the general system. Even in these, however, I believe that the catarrhal swelling of their mucosæ can be lessened by isotonic alkaline normal salt solutions, thus hastening the restoration to that norm, for which these same tracts are being drained.

In conclusion, I desire to be understood not as recommending a cholecystostomy as a therapeutic measure for other ailments than those for which it was originally designed—though that may come in the future—but as urging the utilization of already existing fistulas for indications similar to those referred to in this communication.

4724 Drexel Boulevard.

ABSTRACT OF DISCUSSION

DR. A. F. JONAS, Omaha: I am convinced that Dr. McArthur has given us a therapeutic measure which will be very far-reaching in its effect. If we stop to consider that in cholecystitis or gall-stone disease, we have to deal with an infection, we will find that the gall-stones are only a product of the disease. After their removal by operation in the majority of the cases, perhaps 95 per cent., a cure is affected by drainage to the surface. A certain percentage of the patients are not relieved in this way, in a small percentage not over five, the pain persists for a considerable period after the stones have been removed, and after the external drainage canal has healed. It is in such cases that the drainage proposed by Dr. McArthur would seem most effective. If we bear in mind that in gall-stone disease we have to deal with an infection which is transported to the gall passages, by way of the common duct, lymph channels or the circulation, we observe that the first change is a slowing of the biliary secretions, due to a catarrhal condition. As soon as there is a retarded flow of bile, gall-stone formation is possible. After an operation has been performed and drainage has been instituted, we desire to eliminate the infection and to restore the normal flow of bile and its normal fluidity. I have become convinced that after careful drainage we sometimes fail to give complete relief; in such cases we must institute some means by which bile may be caused to flow with greater rapidity. When the bile is not restored to its normal fluidity, it seems that by Dr. McArthur's method of irrigation of the bile passages with normal salt solution we have the means to accomplish this and to relieve patients in whom drainage has failed. Therefore, I wish to commend the method proposed, and I am sure that with an increasing experience we will find a wider field for its application.

DR. W. L. RODMAN, Philadelphia: I am convinced that a therapeutic measure with great possibilities has been given us by Dr. McArthur. As Dr. Jonas said, it is necessary in many cases of gall-bladder disease not only to make temporary drainage, but to keep up the drainage for some time afterward. In this way it seems to me that not only diseases of the gall-bladder itself, but chronic pancreatitis would be very much benefited by this treatment. Furthermore, we all appreciate Dr. McArthur's reference to appendicostomy, and that there are enormous possibilities in this direction. I have employed the operation in the past year in cases in which drainage of the large intestine was necessary, in chronic dysentery and in diarrhea. I have had the best results from free lavage through the appendix, and it seems to me that in similar conditions in the upper abdomen it might be equally useful.

DR. J. W. DRAPER MAURY, New York: Dr. McArthur's results correspond very closely with mine as I have observed them in animals. I have not yet hit on so ingenious a method of draining the duodenum, but I have done a duodenostomy and have been able to save the animal, which otherwise would have died, by washing out the duodenum by continuous irrigation. It is interesting to see how closely the experimental and clinical sides of this work have come together.

THE MANAGEMENT OF THE APPENDIX STUMP *

VAN BUREN KNOTT, M.D.
SIOUX CITY, IOWA

During the past few years much time and some ingenuity have been expended in devising means for treating the stump of the appendix, and many articles have been published advocating methods which differ widely in degree, utility and ease of application. Many of these methods are so complicated and unwieldy as to merit no serious consideration, and more than one of them has been encumbered with some especially designed instrument to facilitate its performance.

The most extreme simplicity which is compatible with thoroughness has long been recognized as most desirable in operative technic, and it is the purpose of this paper to plead for the more general employment of simpler methods in the treatment of the stump of the appendix.

Two years ago Dr. John A. Wyeth, in a masterly address, presented this question before this Section. I can bring to bear on this subject neither the eloquence nor the weight of authority possessed by my distinguished friend, Dr. Wyeth, but, as in my attendance at various clinics in all parts of the country I notice the somewhat general use of procedures more or less complex, and in some instances unsafe, it would appear that the principles involved are sufficiently vital to permit further discussion. The method here advocated is, in brief, as follows:

The mesoappendix is ligated with No. 1 plain catgut. An incision is made between the ligatures and appendix until the latter has been freed to its base. Around the base of the appendix, practically flush with the cecum, a ligature of No. 2 silk is placed and tightly tied; an artery forceps is then clamped on the appendix half an inch distal to the silk ligature. After the tissues in the immediate vicinity have been protected with a gauze sponge or pack, the appendix is divided half way between ligature and forceps, the stump is thoroughly cauterized, inside and out, with pure carbolic acid and after being thoroughly dried, the cecum is permitted to

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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drop back within the abdomen, no effort of any sort being made to cover the stump.

I have employed ligation of the stump with silk in every instance in which it was possible, in all operations, and have seen no postoperative hemorrhage or other complication which could be charged to the stump treatment in over 2,000 appendicectomies.

It was my practice, until three and one-half years ago, to cover the stump, whenever feasible, by carrying over it from either side a fold of cecum, which folds were retained in position by Lembert sutures. This refinement was finally discarded as unnecessary after the repeated observation that in those instances in which, owing to the extreme infiltration of the stump or the cecal wall, such infolding was impossible, convalescence was as smooth and rapid as when this precaution was observed. About 800 patients have been thus treated with no complication of any sort which could be charged to the stump.

Many cases of postoperative hemorrhage have been reported in which, at operation, the stump had not been ligated with silk or linen, but had been treated by some of the more elaborate procedures, crushing, invagination, etc.

My information as to the occurrence of this accident after such ligation agrees with that of Wyeth, who states that he has been unable to find the record of a single case.

That efforts to bury the stump of the appendix by invagination, infolding, or by stitching over it the stump of the mesentery, prolong the operation and increase the general amount of manipulation necessary must be admitted. That such refinement of the technic is unnecessary has been proved by abundant evidence.

Frequently the attempt to place the sutures to accomplish this burying of the stump will be accompanied by hemorrhage due to the puncture of blood vessels by the needle and at times such hemorrhage may be somewhat difficult to control, much time being lost thereby.

It is a well-known fact that the vitality of living tissues is seriously impaired by prolonged manipulation, and the tendency to wound infection thereby increased. This fact of itself should cause us to "get in and get out" in every operation with as little trauma as possible.

We have all seen efforts made at covering the stump, possibly in unsuitable cases, in which the sutures were placed several times before they would hold, and which when finally secure were only made so at the expense of many tissue cells and much loss of time.

The argument is at times advanced that much danger of postoperative adhesions is engendered by dropping the uncovered stump. I believe this to be a bugaboo with no foundation in fact, particularly if such stump has been thoroughly cauterized with carbolic acid. I have many times had the opportunity to inspect the cecum when reopening the abdomen for other conditions, months or years after an appendicectomy made under the technic described above, and, in most instances, it was only with difficulty, if at all, that the former site of the appendix could be identified on the cecal wall.

That the danger of leakage is increased by failure to cover the stump is another bugaboo which, it seems, should be effectually routed by the experience of Lilienthal, who has in several instances tied off and dropped in similar manner the small intestine with no untoward result.

Believing that our duty to our patients and to surgical art demands that we should prolong neither anesthesia nor manipulation in any instance one moment beyond the actual requirements of the individual case, it is urged that time-destroying and tissue-bruising methods in the treatment of the appendix stump be abandoned for the more rational and safer procedure of ligation and dropping.

500 Security Building.

A CONSIDERATION OF THE FACTORS IN THE MORTALITY OF APPENDICITIS

BASED ON A CONSECUTIVE SERIES OF FIVE HUNDRED AND FORTY-FIVE OPERATIONS, WITH TWO DEATHS *

LE GRAND GUERRY, M.D.
COLUMBIA, S. C.

During the last four years I have had occasion to operate on a consecutive series of 545 appendix patients. Out of this number two were lost, making a mortality of about 0.3 per cent. The mortality rate is, I hope, sufficient justification for presenting the paper.

Appendicitis is by far the most important acute abdominal lesion that surgeons are called on to treat. It is about eighteen years since Fitz, of Boston, gave to the medical profession his classical treatise on appendicitis; it would not be far wide of the mark to say that the birth of the recognition of this disease was in Fitz's paper. He taught us pathology, he taught us what the disease really was, and its scientific and rational treatment followed not only logically but of necessity.

That 545 consecutive operations can be done by an ordinary man under ordinary conditions, with but two deaths, and these two occurring in the first 100 cases, leaving 445 cases without death, proves to my mind, at least, that there is a factor in the mortality that is not fully appreciated, or, if appreciated, is not practiced as it should be.

The 545 cases were divided as follows: Of chronic cases requiring so-called interval operation there were 240, with no death; of course, no one expects mortality in the ordinary cases of chronic appendicitis. Unless some unforeseen calamity occurs, the patients all recover, for the cases are practically aseptic.

Of acute cases there were 92 in which operation was performed within thirty-six hours. If I follow any rule in regard to this work, it is that I always operate as soon as the diagnosis is made, provided such diagnosis can be made within thirty-six hours. The reason for this is obvious: were it possible to operate in all cases within twenty-four hours, in nearly every instance one would operate before the infectious process had gone beyond the appendix; in other words, one would be able to do clean work in an uncontaminated field. The cases are few in which the infection spreads beyond the appendix within twenty-four hours. In cases seen on the third, fourth or fifth day, the clinical, as well as the pathologic, conditions are different.

I quote the following from Maurice Richardson:

After the first forty-eight hours the conditions found at the operation differ materially from those of earlier hours; necrosis has been fully established, localization has become successful or infection has become general; the appendix will be found imbedded in recent adhesions. Contiguous to it, surrounding it, or in some way connected with it, will be found

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

a foul-smelling exudate teeming with bacteria; this exudate will vary in its location between wide limits of the peritoneum; it may be far to the right behind the cecum; it may be high up, involving the liver and kidney; it may fill the pelvis or cover the bladder; it may be buried among the small intestines; it may be directly under the skin; it may appear in the left lower quadrant of the abdomen.

I certainly question, and believe it perfectly fair to do so, a method that prescribes an invariable rule of procedure when cases are seen at this most critical stage of the disease.

The third-day and fourth-day acute cases are the ones that give mortality. This question often arises: Why are there so many cases of localized appendix abscess? The answer, in my opinion, is that there is a definite and unmistakable tendency toward localization in cases of appendicitis complicated by the presence of pus. In this series of 545 there were 213 of this variety—a very large proportion.

Of these 213 cases, 68 were seen for the first time on the third or fourth day of the disease. The pulse in most cases was 135, temperature 104; vomiting, distention, pinched features and more or less delirium were also present. Such cases as these are the ones in which operation is attended with mortality. None of these patients were operated on immediately; all were treated according to the Ochsner method: they were tided through the period of great danger and several days later were safely operated on for localized appendiceal abscess. I believe that this method has been greatly misunderstood by many people, but I also believe that, properly applied, this contribution of his is a life-saving measure and entitled to the highest consideration. It was never intended that it would take the place of operation, but that it should permit the selection of a safe time for operation. It does convert an operation attended with great mortality into an operation of safety and conservatism.

The mistake made by the man of ordinary ability lies in the fact that he thinks, for example, that because a surgeon of national reputation can operate in all cases as soon as he sees the patients, without regard to time or place, he himself can follow the same method successfully. This belief is, I believe, entirely wrong and fraught with great danger. The real point is to determine what methods the individual himself can use most successfully. In this dangerous class of cases the time for operation is the all-important consideration. Richardson says that some patients "should be operated on immediately, some require a more favorable opportunity, and some permit leisurely selection of a convenient time."

I submit, in support of this position, the above sixty-eight cases seen on the third or fourth day, the patients all treated as above indicated, all coming to operation with ruptured and gangrenous appendices containing pus and all recovering. Some will ask why not do, as Murphy advises, perform rapid removal of the appendix, drainage and enteroclysis. I submit that no method could produce better results in these cases.

Stanton[1] says:

> There can be no doubt of the advisability of operative interference previous to the time of the development of peritoneal infection, nor is there any doubt of the satisfactory results and low mortality of operative work in the stage of localized abscess formations. The high mortality of operative interference between these periods is known to all, and the clinical results of Ochsner and many others now overwhelmingly demonstrate that with proper methods of treatment the vast majority of cases seen first during the stages of diffuse lesion can be carried over for operation at a later, more favorable period. The almost absolute uniformity in the progress of those processes leading up to the localization or resolution of the peritoneal inflammation, as it was observed in this study, has served to convince the writer that the claims of those advocating conservative treatment during certain stages of acute appendicitis, are founded on a much more definite pathologic basis than is generally recognized by the profession at large.

The whole question naturally hinges on the cases seen for the first time on the third or fourth day—cases with acute spreading infection. It must surely have been genuine insight on the part of Ochsner, who laid bare the principle that the chief factor in the dissemination of the peritoneal infection was the vermicular movement of the small intestine. Since in appendicitis there is a constant regurgitation of the contents of the small intestine into the stomach, due to the closure of the inflamed ileocecal valve, the practice of gastric lavage, which empties not only the stomach, but the small intestine, has its foundation in a rational conception of the diseased process. The basic principle is that we thereby secure a condition, approximately at least, of physiologic rest to the inflamed area, which gives Nature the chance she has been seeking to complete the localization of the infection. I wish to emphasize particularly the point that none of these patients were operated on immediately; they were all treated as outlined above. All were safely operated on at a later date; and in each case a gangrenous or ruptured appendix, with pus, was demonstrated at operation. No patient died as a result of the treatment.

I do not wish to be understood as advocating an extreme measure; it has always seemed to me that when one operates on all patients as soon as they are seen, regardless of time or place, one leaves no room for the exercise of the operator's surgical discrimination and judgment. The natural forces working on the patient's behalf, to wit, his opsonins, his leucocytes, his resistance and ability to overcome the infection and develop immunity are absolutely lost sight of; that these natural forces are of the greatest possible help is proved, to my mind at least, by the fact that in so many cases the disease is localized when the patient is first seen.

The question of how to operate and of skill in operating is of greatest importance, and I would not for one moment convey the impression that nothing else was to be considered. The gynecologists learned years ago that it was fatal to operate in cases of pyosalpinx in the acute stage; they learned to wait until immunity was developed; then the mortality became almost *nil*. Whether the case is acute or chronic, clean or suppurating, operation is done through the McBurney incision; drainage, when necessary, is through a stab wound to one side; it is very rare, indeed, when this incision is abandoned. The rule is to remove the appendix; to this rule, however, there are exceptions. I believe it better to enter the free peritoneal cavity by Ware's modification of the McBurney incision, pack off the infected area and remove the diseased tissues.

Of the two who died, one patient with renal tuberculosis developed acute appendicitis, died on the eighth day with postoperative anuria; the second was a little girl, 7 years of age, who had been sick for ten days, and died from a continuation of the peritonitis.

1. Stanton, E. M.: Sequence of the Pathologic Changes in Appendiceal Peritonitis, Surg., Gynec. and Obst., April, 1908, vi, 397.

DEATH IN ACUTE INTESTINAL OBSTRUCTION AND KINDRED CONDITIONS IS DUE TO PHYSIOLOGIC DISTURBANCE

STUDY I. HAS THE DUODENUM A TOXIC INTERNAL SECRETION?*

J. W. DRAPER MAURY, M.D.
NEW YORK

Physiologists often quote the sentiments of Montaigne: "'With how little anxiety do we lose the consciousness of light and of ourselves.' By this they would convey the idea that the act of dying is as painless as the act of falling asleep, and also as little perceived." Nevertheless, so strongly rooted in the human mind is the desire to live that the great profession of medicine has for its chief purpose the lengthening of human life. Hence it is natural that the study of the causes which bring death to a cell, to an individual, or to a race of men, has for long been a favorite and engrossing one. "The supreme fact," says Adami, "that sooner or later death comes to all men, has profoundly affected all human thought, and the various religions of the world may be regarded as the evidence of man's determination to rise superior to the dissolution of his body." In the unicellular organism there is no destruction of the essential living matter, but a multiplication of the same, each spore carrying on the life. In the ordinary interpretation of the word, there is no natural death. "It is with the appearance of the multicellular organisms that natural death enters into the world." In the cellular differentiation it comes about that the germ cells are given the inherent power of life, while the somatic cells through the elaboration of which the individual organism reaches its final development—side-tracked groups, as it were—the sentient genetic agminations, which we recognize as individuals, are destined to hold and live together for a span and then to undergo dissolution. There are in general two forms of death which may befall the somatic cell, the physiologic and the pathologic. The latter form of death may be induced by mechanical, physical, chemical, or bacterial agents. With these in the present paper, which deals with the cause of death in the duodenojejunal obstruction alone, and more remotely with the little understood lethal outcome of gastric, pancreatic and hepatic lesions, I hope to demonstrate that we are not concerned. For if the observations extending, as they do, over a period of four years and embracing more than 400 observations, are in their essentials correct, it may require no great foresight so to interpret them as to lead clearly to the conclusion that the physiologic mechanism of the duodenum and its associated glands is not merely at present but vaguely known, but that it presents to the student of these parts, and through him to the operating surgeon or the internist, a picture of physiologic exchange of secretions, some of them perhaps internal in character, in comparison to which functions of the parathyroid and other better known glands seem simple.

We are entering on the physiologic era in medicine and in surgery, as well, and, as already intimated at the beginning of this paper, no subject offers a more engrossing field for thought than that which deals with the cause of death under certain pathologic conditions. I take it that this interest has a double source: first, because of the mystic element which from time immemorial has shrouded the final dissolution of the body in an impenetrable veil, and, second, because for students of disease a knowledge of the cause of death in a given lesion is necessarily the first step toward a knowledge of the factors which may be invoked to prevent that death. The pathologic forms of death, particularly those induced by bacterial agents, are now reasonably clear, but physiologic death—that form of dissolution of somatic entity which follows parathyroidectomy and that associated with adrenal and pituitary destruction or removal—this physiologic form of death is the study with which we have to deal. It immediately and profoundly concerns the future progress of the treatment of diseases of the stomach, the pancreas, the liver, and the duodenum.

There are certain very interesting phenomena which are common to these lesions. Some have been recognized from studies on human beings and on animals. Others, which will be dealt with in the course of this paper, have been the outcome of the studies herewith presented, and it is my effort to correlate the known facts with the new facts referred to. For I understand physiologic death to comprise not alone the dissolution which follows the removal of certain substances from the body by destruction of their secreting cells, as seen in parathyroid and suprarenal removal, but also that dissolution of somatic life which is brought about by the mechanical interference with detoxication of the normal secretions of the body. Such, at least, seems, after careful thought, to be the probable condition which obtains in the duodenum when the normal current of the intestine is blocked. The first thing which naturally suggests itself is that there has been a failure of normal exchange between the known secretions of the duodenal mucosa, the pancreas and the liver, which exchange is accompanied by a detoxication or absorption of certain of the known poisonous products of the digestive ferments. William Welch, however, in commenting on preliminary reports of this work, has said that, if corroborated, the experiments herewith detailed suggested very strongly an actual internal secretion from the duodenum. I lay no claim to having as yet proved this, but am encouraged in the belief that further experimental work along the lines employed, and perhaps by others more qualified than myself, will ultimately prove which of these two views is the correct one. I regard it as conclusively demonstrated, as well by the work of others as by my own, that the death following duodenojejunal obstruction, and probably the death which characterizes acute pancreatic disturbances other than infections and traumatisms, that associated with the symptom known as gastric dilatation or gastric tetany, and that associated with certain operations on bacterially clean surgical fields in which the hepatic ducts have been invaded—that all these now uncorrelated and little understood deaths are due to a common underlying cause as yet not understood.

It will thus be seen that the studies here presented represent but a small and weak link in the chain, which it must take years to forge before the conclusions which I have ventured to suggest are made scientifically acceptable. For their importance in the development of this idea rather than for individual intrinsic merit they are herewith submitted.

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* From the Surgical Research Laboratory, Columbia University, New York. This article is the first of a proposed series of studies which seek to correlate duodenal, pancreatic, hepatic, and perhaps gastric autointoxications. The work was done under a grant from the Rockefeller Institute.

Of these associated problems, if for purposes of argument in an investigation one grant that there be an association, it has been my fortune to study the one which perhaps presents greater difficulties because of its anatomic position, namely, the duodenum and jejunum. In whatever manner this may be rightly considered, I ask to be allowed to start with the hypothesis that the intestinal barrier which closes the lumen works no ill to the organism save through an interference with the physiologic exchange or balance of the duodenojejunal secretions, and that the resulting death is physiologic in type. Whether these secretions, as already intimated, are endoenteric or exoenteric is not yet known. The extraordinary sensitiveness to operative procedures, however, of the parts, together with the experimental deductions, suggest rather strongly that there are other factors at work in addition to those which may be attributed to the zymotic action of the known secretions, and this, of course, points to an exoenteric or internal secretion of the duodenum.

I ask that it be assumed for the moment—and of this we have adequate proof—that in intestinal obstruction there is no appreciable damage to the individual through the nervous system from the direct trauma of the obstruction; that there is no lethal infection of bacterial origin; that the element of decomposition of food does not enter into the picture at all; in short, that all pathologic forms of death are eliminated, and I will strive to detail the simple and, may be, inefficient measures which I have taken, not alone to prove these things, but to throw light on the intricate questions which are the real subject of these studies.

NERVOUS EFFECT OF INTESTINAL SECTION

Clinically, surgeons have recognized a difference of degree in the shock produced by cutting the intestines in various places. The nearer one approached the pylorus, other factors being equal, the greater the shock. The actual longitudinal section of the pylorus, which is the essence of the well-known Finney pyloroplasty, has always been accompanied by immediate clinical reaction and has formed the basis for one of the arguments against this operation. Nevertheless, experience has shown this shock to be transitory and to present no real danger. This observation in itself is significant of the error of the view that any of the symptoms of intestinal obstruction are rightly to be attributed to the nervous manifestations due to the constriction. It is not to be denied that such nervous phenomena make themselves felt at the pylorus, where a protecting interference with its normal mechanism is always manifest as the result of any injury to the aboral portion of the intestinal canal. Furthermore, operations which will be described later, and in the course of which the highly sensitive pyloric region was entirely removed or seriously injured, and as a result of which the animals recovered without any sign whatsoever of obstructive intestinal autointoxication; and, still further, operations in the remotely aboral portions of the small intestines—and which technically were associated with the same amount of traumatism as those just referred to, and following which there was a similar return to health—these considerations, together with those already referred to, show conclusively that the nervous shock or reaction—let it be called what it may—has nothing whatsoever to do with the cause of death in intestinal obstruction.

It stands to reason that if a dog would live for weeks with ileac obstruction, and would die at the end of a few hours with duodenal obstruction, while the same dog could be made to live also for weeks with but the slightest gastric drainage, the immediate effect of traumatism may be discounted. Incidentally it may further be noted that whatever nervous traumatism might be associated with the dilatation of the proximal loop would presumably be greater where there occurred the greater dilatation. In the majority of fatal cases of duodenal obstruction there was little or no such dilatation.

INFECTION OF BACTERIAL ORIGIN

For purposes of further study it should be borne in mind that all the deaths arising from intestinal obstruction, except probably cases in which such obstruction occurs in the vicinity of the duodenum, pathologic deaths may be and probably frequently are caused by the entrance of pathogenic germs through the dilated proximal loop, to the vascular system. This has been thoroughly worked out by Roger, of Paris, and MacCallum in Baltimore. These observers, as well as others, have found bacteria in great numbers circulating in the blood when the obstruction has been located in the aboral portion of the ileum or the great duct. No such germs however, have been found in the blood as the result of duodenojejunal obstruction. One is not going far afield, probably, in believing that there exists a line somewhere about the termination of the jejunum where intestinal obstruction causes death from bacterial invasions if it occur aboral to this line, and death from interference of duodenal functions, if oral to this line. Indeed, it seems quite natural that there should be no bacteria from the blood in the one class of cases, first because the pathogenic flora of the duodenum is absent or exceedingly spare, and, second, because death usually takes place before there is much, if any, impairment of the wall of the duct oral to the obstruction such as is commonly seen in those obstructions occurring in the ileum of the great intestine and through which bacteria may escape.

DECOMPOSITION OF FOOD

In almost every text-book article on the subject one finds that the element of food decomposition has in the past been credited with an important rôle in causing death in intestinal obstruction. It is noteworthy, however, that if a series of dogs be allowed to fast for three days and then be given copious doses of castor-oil, and immediately thereafter be operated on so as to produce duodenojejunal obstruction, death will take place in the same average time and under conditions similar to those observed in a series the individuals of which had been copiously fed just prior to operation.

With these premises and in part for academic purposes of argument, it becomes necessary to assume that we shall differentiate in intestinal obstruction two entirely separate and distinct forms of death; the one duodenojejunal and purely physiologic, due to an unknown disturbance of the endoenteric or exoenteric secretion of the duodenum and its glands; the other ileac and purely pathologic; the one a true autointoxication, the other a true exointoxication. Although the series of 400 cases of duodenojejunal obstruction experimentally created in dogs is not a small one, the positive conclusions which are offered by it are regrettably small. Aside from recognized personal deficiencies, this may fairly be attributed to the fact that the experimental studies have now reached a point at which the services of chemists and biologists, rather than those of surgeons alone, are required.

TECHNIC

As in many other cases, the method of studying duodenojejunal obstruction was discovered accidentally

while in the pursuit of other matters. These preliminary studies consisted in efforts to create a delayed gastro-enterostomy somewhat after the manner of the well-known McGraw elastic ligature, except that common twine was to be used in the newer technic. Surgeons at the time were interested in the technical consideration whether or not it was necessary to remove a portion of the gastric mucosa at the time of the making of the stoma. The McGraw ligature simply cut a slit and Dr. Weir desired this modified so that an actual fragment should be removed. In an effort to study the degree of shrinkage of the stoma, it became necessary to close the pylorus or duodenum in one series, while this region was left unobstructed in the other series. It was then that the interesting phenomenon was observed, namely, that closure of the oral portion of the intestine almost always resulted in death before the cutting through of the delayed gastroenterostomy. It was a perplexing coincidence that every animal died, to a dog. There was no immediate reaction from the operation other than normal, and during the first thirty-six hours the animals seemed to be in perfect postoperative condition. Suddenly, however, and with a singular uniformity, it was noted that between the thirty-sixth and the seventy-second hour they were seized with symptoms which peculiarly resembled those of parathyreopriva. The heart-beat was accelerated, often rising to 250 per minute. The face was anxious, with an expression not so much of pain as of distress. The gait, while the animal was able to walk, was peculiar owing to a spasticity of the hind legs. This spasticity involved chiefly the flexor groups of muscles and was sometimes so marked that the animals walked directly on their hind toes. There were well-defined muscular tremors; these were fine and seemed to be particularly prevalent in the intercostals. The spasticity would last for perhaps ten hours and be succeeded by a paresis, as the result of which the animal ceased to walk. The entire picture frequently lasted less than eighteen hours, for the course from postoperative seeming health to death was usually extremely short.

At autopsy an early *rigor mortis* was noted. There was neither peritonitis nor any gross lesion discoverable within the abdomen. The oral loop usually was not dilated, and the efforts made to preserve the normal blood supply of the intestine had uniformly been successful. For the purposes of study it was fortunate that the period necessary for this physiologic death to overtake the animal was about the same in length as that which was required by the string to cut the delayed gastroenterostomy. It was fortunate because it at once afforded a means of controlling the observations. Granted that the time of cutting out, in the normal dog's intestine, of the stoma, would be about constant, one had simply to make the other factor, which was the position of the obstruction, a variable one, and judge results in terms of the control. This chronicled the results, as it were, in terms of gastric drainage; for it must be remembered that the slightest drainage of the oral loop will counteract the lethal effects of what we believe to be a physiologic death, due to a disturbance of physiologic intraenteric enzymotic balance.

DETERMINATION OF ABORAL LETHAL LINE FOR PHYSIOLOGIC DEATH

Logically the first step, after determining by a long series that death will follow the closure of the duodenum at any level before drainage might be established through the potential stoma, was to ascertain the effect of placing the obstruction in the jejunum. Another lengthy series determined, we believe with accuracy, that death would not occur in a medium-sized dog during stoma control, namely, seventy-two hours after the operation, in any case in which the obstruction lay more than 35 cm. aboral to the pylorus. The individuals exposed to this type of experiment will in future be referred to as the "long-looped dogs;" for to them, on account of possible production of antienzymes, or protective bodies of unknown character, there attaches a peculiar and perhaps a lasting interest. These long-looped dogs, barring ordinary accidents, survive the moderate toxemia to which the obstruction gives rise clinically, and will live often for several months without apparent discomfort or loss of body function. On autopsy the oral segment may be found but moderately dilated, and the evenness of digestive function, as evidenced by maintenance of body weight, suggests the phenomenon of gastro-proteid digestion.

The conclusion, then, from this series of cases, was that the addition of a relatively short portion of the jejunum to the oral loop in some unknown manner served to prevent the dogs from dying before the stoma cut through. Thus it would seem either that the jejunal mucosa had the property of absorbing the poisonous products from the duodenal region, and in some way rendering them harmless, or else it secreted an enzyme which acted as an antibody for the poisonous products referred to.

DETERMINATION OF ORAL LETHAL LINE FOR PHYSIOLOGIC DEATH

The next step naturally was to determine the oral limits at the point of obstruction beyond which one might go without encountering physiologic death within the time limit of stoma control. Because of the studies of Roger on gastro-toxic serum, it is of great importance to know whether death in intestinal obstruction be due to the absorption of gastric toxin, or whether death takes place, as I believe may be the case, from a disturbance of the duodenal internal secretion. It should be repeated that this is as yet an hypothesis, but I believe it to be a working hypothesis. Roger states that simple ligature of the pylorus leads to this physiologic death in from seventy-two hours to five days. That, it will be observed, is just outside the limit of the twine control which we have used in our studies. So much, however, that is accidental, is certain to enter into all this sort of work that one feels a hesitancy either in commenting on the results obtained by others or in pressing one's own experimental findings. It is certain, however, that I have observed this fact, namely, given free drainage of the duodenum through the normal channel, the stomach may be obstructed at or near the pylorus more frequently without lethal results, until the cutting through of the stoma, than if the obstruction were in the duct-bearing portion of the duodenum. Of course, in this type of experiment, with the drainage of the duodenal digestive products proceeding through a normal channel, there ceases at once to be a reason why the animal should not live for an indefinite period. It should not be understood that no physiologic toxic elements arise from the stomach, and that the source of the toxicity is strictly duodenal or pancreatic, but I have been struck by the fact that, discounting all consideration of biliary toxemia which one seems justified in doing, the source of the poison lies either in the duodenum, the stomach, or the pancreas. In the light of our present knowledge and measuring the degree of toxicity by a time-drainage unit, rather than attempt-

ing to measure it as Roger has done in terms of toxic units, I was led to assume that the main source of the toxemia was not in the stomach, but in the duodenum. This enabled me, for purposes of study, at any rate, to place the oral limit of the lethal line between the pylorus and the papilla of Vater, because until now the question of the influence of the bile had not yet been worked out. The mere fact that a proportion of animals would die when the obstruction was situated at the pylorus should not be looked on as necessarily proving that the source of death was to be found in the stomach, because it is quite conceivable that an interference of enteric circulation at the pylorus might serve to upset intraduodenal balance simply by deprivation of gastric secretions.

The duct-bearing portion of the duodenum has long been recognized as an area having unknown and profoundly complex physiologic properties, and it is in part the object of this paper to demonstrate that a more accurate interpretation and knowledge of the physiologic processes going on in this short tube must form the groundwork for future therapeutic progress, be it surgical or medical. The morphologic relationship of the stomach, liver and pancreas to the duodenum has been graphically portrayed by Mumford, who says that the pancreas, liver and ducts and the stomach hang like three apples on a single stem—the duodenum; whatever affects one very frequently affects the others. What more striking simile could one have? I submit that these studies have carried us still further and that we are now justified in considering not alone the morphologic relations, but also the physiologic relations, as fixed. Is it not most significant, in view of the close morphologic relationship of these organs, that we have from unknown causes fatal hemorrhages into the pancreas; fatal dilatations of the stomach; fatal sequels to biliary operations which are not adequately drained; fatal terminations to duodenal obstruction—all occurring without the possibility of bacterial toxemia?

ELIMINATION OF THE BILE BY DUCT LIGATION: CHOLECYSTENTEROSTOMY AND TRANSPLANTATION OF POINT OF DISCHARGE INTO DUODENUM

A long series fraught with great technical difficulty was created, in which the bile was intended to drain into the ileum by use of the ordinary suture opening between the gall bladder and the intestine. For some reason, however, although the technical part was accurately executed, there was in every case a failure of the bile to drain. I finally concluded that either there was a change in its composition, owing to infection from the ileum (and for this there seemed reasonable basis for belief, because the contents of the gall bladder appeared milky on autopsy), or else that the secretory function of the liver cells had been abandoned, or had changed to an absorptive one. Such a change is not infrequently met when conditions of exit to a secreting gland are changed. In any event, whether the bile drained or not, it was impossible for it to enter the oral intestinal loop, as the common bile duct had been ligated and divided. The results, so far as the physiologic death of the animal was concerned, were just the same as if the bile had been present in the intestine. Death occurred in short-looped dogs (less than 35 cm.) before stoma-control drainage. Nevertheless, conditions for this study were not ideal because there was either a suppression of biliary secretion or else its absorption into the blood. In order to enable me to feel that I was not superimposing hepatic changes on those already under consideration, a colleague of mine devised an ingenious means for the direct transplantation of the bile to the aboral loop, by a device hereafter to be described, which will form the basis of a communication from him at a later date. It comprised the reconstruction of the common bile duct. The use of this simple and effective technic allowed of sufficient room between the transplanted biliary intake and the greater duct of the pancreas, either for complete section and invagination of the duodenum, or its ligation, as the case might be. Here again a series of sufficient size demonstrated that the supposed toxicity of the bile, at least in regard to death from obstruction, was erroneous. Parenthetically bile has probably been a much-abused secretion and it is time that any undeserving onus was removed. Hippocrates credited black bile with being the offending agent in digestive disorders. More recent observers, however, namely, Kocher and Moynihan, agree that the flow of bile into the stomach is in no way deleterious to the health of the patient. Since my own observations on the intraenteric and intragastric presence of bile are corroborated as to its harmlessness, is it not interesting that it should be universally regarded as essential to drain in all operative cases in which the gall bladder or ducts have been tampered with? Perhaps one may be excused for offering the suggestion that such drainage, in an as yet unknown way, reacts on the duodenal secretions. It did not matter, then, whether the bile entered into the oral or the aboral loop, whether the common bile duct was simply ligated or cut, or whether cholecyst-ileostomy were done; the lethal outcome appeared very conclusively still to be dependent entirely on the position of the obstruction. In other words, bile, the salts of which are known to possess a very considerable degree of toxicity, was in no way connected with the physiologic death under observation.

RELATION OF THE PANCREATIC SECRETION TO INTESTINAL OBSTRUCTIVE PHYSIOLOGIC DEATH

It had already been shown that death took place in short-looped dogs whether bile was present or absent in the oral segment. The morphology of the parts did not allow a transposition of the pancreatic secretion, in the first place because there were two ducts, and in the second place beause they were always short and firmly fixed to the pancreatic tissue. Any interference with this, no matter how delicate, might, as all know, lead to fat necrosis and other conditions which would confuse the point at issue. By transposing the bile, however, I was able to move its point of entry as many centimeters aboral to the papilla of Vater as was convenient. After ligating the lesser duct of the pancreas at its point of entrance beside the papilla and cutting it, one could make certain of having sufficient room to sever and invaginate the duodenum in such manner that all the pancreatic secretion might empty into either the oral or the aboral intestinal loop. Opie, in a recent communication, has commented on the fact that drainage of the greater duct would usually suffice to prevent any undue hardening of the gland because of retained secretion, and I have been glad to corroborate and make use of his observations.

The result of these studies was conclusive in one regard, namely, that quite irrespective of the whereabouts of the discharged bile a large proportion of the dogs lived during stoma control when the pancreatic secretion drained aborally, and they died during stoma con-

trol when it was confined in the oral loop. While I seemed here to arrive in a measure at the crux of the situation, too definite conclusions in interpreting these studies should not be drawn. The excessive sensitiveness of the duct-bearing portion of the duodenum makes it imperative that more than ordinary care should be taken in furthering these studies, and corroborative evidence should also be asked from other observers. That the secretions of the gastric mucosa may be toxic, and that this toxicity may be increased many thousand times by an oral intestinal obstruction, must not be lost sight of. That under certain conditions of deficient drainage the secretions which emanate postoperatively from the hepatic regions are also extremely toxic must further not be forgotten.

But I have accomplished enough to warrant the conservative suggestion that, whatever may be the nature and degree of this toxemia, whether in reality it is of a common origin in the duodenum or from separate origin in the glands or stomach, that one which develops from a disturbance in the duct-bearing portion of the duodenum contains poisons of an exceedingly grave nature. It is presumably not to be denied that the increase in the amount of gastro-toxins noticed after pyloric obstruction may, as already intimated, well be brought about by the interference of a normal duodenal limitation of such toxic development. It is a point of perhaps more than academic interest that Weinland has found that an antitryptic ferment existed in the oral portion of the small intestine. Is one justified in supposing that as the pancreatic juice, grossly at least, appears to be the lethal agent, the danger from obstruction grows less and less the further one places it from the pylorus, and, therefore, more and more in the antitryptic-bearing portions of the canal? Let it not be understood that this is intended to state, or even suggest, that trypsin alone, or as such, is responsible for the physiologic death described. No doubt there are many other ferments and antiferments occurring in the duct-bearing portion of the duodenum, and created either by its mucosa or by the cells of the pancreas or liver, but mention is made of the trypsin simply because it is representative of a class, the antibodies to which have been definitely found. It is in interpretation of these experiments that license has been sought for the presentation of the hypothesis offered at the beginning of this paper, which, it will be remembered, submitted that duodenal secretions of either intraenteric or extraenteric origin were in their disturbed function responsible for the death following duodenojejunal obstruction.

Some such hypothesis is at present necessary in order to explain the singular clinical syndrome of symptoms, as well as the singular phenomenon of the protective power of the first 35 cm. of the intestine, the presence of which, in the oral loop, suffices to prevent death before the opening of the stoma control.

THERAPEUTICS

Aside from the purely scientific interest which centers in these studies, the possibility that from them important changes may be made in the therapy of duodenojejunal obstruction is of the very greatest importance. Treatment obviously should be based on the conception that the lesion is an autotoxic one, and that the source of the lethal agent is in the duodenum. The second logical conclusion is that the blood must be filled with the toxic products, of whatever nature they may be, and that the modern method of bleeding followed by transfusion from a healthy individual is indicated. I can not refrain from suggesting that a third possible therapeutic agent may be invoked, namely, that a protecting serum may be developed from the long-looped dogs. Now that these studies have made possible the preparation of dogs which shall be made moderately sick from a toxemia produced by leaving sufficient of the jejunum in the oral loop just to save them, it should be an easy matter to determine what effect, if any, the serum from these possible immunes might have on the short-looped animals in which there was no protecting jejunum in the oral loop.

Such are the three lines of experiments which are at present being developed, and in regard to the two first, namely, retrograde irrigation of the duodenal oral segment through the stomach, combined by bleeding and transfusion, I am glad to state that enough work has already been done to justify the hope that a noteworthy decrease in the present high mortality of this lesion should follow bleeding, transfusion from the normal, and retrograde lavage. In a dog it is easy to accomplish, the pyloric sphincter offering no obstacle either to alkaline or acid irrigation fluids. It is quite conceivable that some modification of this method might easily be employed on the human being. The technic consists in simply drawing the oral loop to the surface where it is made fast; in inserting a catheter which is connected to a douche bag and allowing the flow to take place toward the stomach. A stomach-tube should first be introduced. Through this, as soon as the duodenal current is established, an immediate flow of the greenish-yellow duodenal contents pours freely from the stomach-tube. In human beings it would be possible, and perhaps worth while, to maintain a slow irrigation of the oral intestinal loop somewhat after the so-called drop method of Murphy for irrigation of the colon. On experimental grounds it would seem desirable that such washing of the oral loop should be done thoroughly before the obstruction was removed, because, as has already been shown, the mechanical presence of the obstruction is no menace to the patient, it being the absorption of the duodenal products which causes the symptoms.

In closing, and in support of the hypothesis presented, I would quote from a few authorities: Adami says: "We are, in short, only at the beginning of a knowledge of intestinal intoxication. Indol may possibly induce symptoms, but something more would seem necessary to account for the greater symptoms of ileus."

Magnus-Alsleben has shown that the contents of the stomach and duodenum are distinctly more toxic than those of the lower part of the bowel. In regard to immunization against enzymes as contrasted to that of bacteria and their toxins, he states that the development of antienzymes is limited and that it does not become extreme.

Vernon, in his recent book on the antiferments, states that enzymes closely resemble toxins in their power of stimulating the tissues to form antibodies.

Korschun states that the relation of renin to antirenin closely observes the laws of toxin to antitoxin.

Sachs immunized geese against pepsin twenty times above the normal.

Achalme made antitryptic serum. Finally, I may close with a quotation from Vernon's preface: "The cellular protoplasm of all living organisms is made up very largely of ferments or enzymes, and many or most of its properties are dependent on their activities."

264 West Fifty-seventh Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KNOTT, GUERRY AND MAURY

DR. W. D. HAGGARD, Nashville, Tenn.: I was particularly impressed with the results obtained by Dr. Guerry in his cases of appendicitis. In reference to the technic spoken of by Dr. Knott, I think that most men are agreed that simple ligation of the appendix is sufficient. I prefer catgut to silk; I see no disadvantages pertaining to the catgut, but see many in the use of silk. I think, too, that in the interval case it does not make much difference, but it is a nicer way to invaginate the appendix. I have been accustomed to employ a technic which seems to be rather general—crushing the base of the appendix, ligating with catgut, invaginating the small crushed stump and closing it up with purse-string sutures of linen. It leaves nothing to be desired. With reference to that ever-recurring but delightful phase of appendicitis, when to operate, I think that we are now more agreed than we were years ago about the time for operation. Ten or a dozen years ago I learned that the cases we lost were the third, fourth or fifth-day cases. I declined to operate and found that a number of patients survived with abscess formation that could easily be evacuated at any time from the tenth to the fourteenth day. Now, if the early opportunity for safe operation has escaped, the patient is in that stage where his own resisting fluids are doing the work of repair admirably and should not be molested. I deliberately carry out the plan advocated by Ochsner, and with much satisfaction. I disagree with the theory that when Nature has carefully walled off the abscess, and it is adherent to the abdominal wall, that it is wise to search out the appendix when it is a part of the abscess sac. There are a great many delayed cases in my section of the country, and we operate on these patients simply by incision and drainage. We do not bother about the appendix, and all the patients recover. I think that it is unwise to break up adhesions that Nature has so carefully produced for the ten days preceding and thus take a chance of disseminating the infection. I think the other is the better plan. I believe that in general it is much safer to incise and drain the abscess. In my experience, comparatively few, about a fourth, require reoperation. In the third and fourth-day cases, we are not operating for appendicitis; we are operating for peritonitis. The golden moment has gone by, and I say to the patient and sometimes to the doctor, who is always most insistent for operation at that inopportune moment, when he did not insist on operation before that, that we are in the position of the man whose house is on fire from the explosion of a gasoline stove; why rescue the stove; the house is on fire? We get the appendix, but the patient dies. Put out the fire and the stove need not be considered.

DR. E. MACD. STANTON, Schenectady, N. Y.: About two years ago I analyzed the pathologic findings in 1,019 cases of appendicitis occurring in the Albany City Hospital and in Dr. Ochsner's service in Chicago, while I was with him. I undertook this study because I was convinced that much of the confusion as to the pathology of the disease as described in the standard works on the subject was due to a failure to recognize the fact that inflammatory processes originating in the appendix pass through a definite sequence of changes, just as inflammatory lesions located anywhere else in the body. This study brought out one fact which I wish especially to emphasize, and that is that appendiceal peritonitis, like any other form of peritonitis, except that due to gross perforations, such as perforating gastric ulcer, will, if one will only stop the peristalsis, undergo a definite and clean-cut sequence of changes, showing almost no tendency to further spread, but, on the other hand, almost invariably ending in the formation of a definitely localized periappendiceal abscess. In the first two days of the disease, we are dealing with the appendix, and if it is removed the peritonitis, if present, will take care of itself. After this period, and until the period of localized abscess formation, we are dealing with a diffuse, undrainable intraperitoneal lesion but little if at all benefited by removal of the appendix, and efficient drainage at this time is impossible. If things are left alone for a few days it will be found that all these patients at the eighth or ninth days have localized abscesses. The patient has not died in the meantime and there is now an easily treatable—a surgically drainable—lesion. One more thing I wish to emphasize and that is the danger of letting these abscesses go on beyond this period, for it is after about the twelfth day that we find the pus beginning to seek exits of its own, and it is only after this time that we begin to see pyemia, metastatic abscesses and the various complications resulting from old neglected abscesses.

DR. W. L. RODMAN, Philadelphia: I am fully in accord with the position taken by Dr. Knott. There are many ways, and good ways, of treating the appendix, but it seems that the more simple the way the better all things considered. I believe that in the vast majority of instances simple ligation of the appendix, with cauterization of the stump, is better than crushing and sequestration of the stump. I think that it is better to do a subperitoneal amputation of the appendix, cover over the end of the stump to diminish the danger of infection primarily, and also to render the danger of adhesions forming subsequently entirely a negligible factor. I have never seen secondary hemorrhage after simple ligation of the appendix, but I have known it to occur in more than one instance after the purse-string suture has been used; in one case I was told that there was a large fecal extravasation into the peritoneal cavity, resulting, of course, in a fatal peritonitis. Therefore, it seems to me that in this operation especially which must be done so often, and done under the most adverse circumstances by operators who have not the best assistants or environment, that the simplest technic is the best. In regard to the treatment of appendicitis as outlined by Dr. Guerry, I am fully in accord with his position. There can be no doubt that such patients should all be operated on within the first thirty-six or forty-eight hours, and if we do not see these cases early, then it is perhaps wise, in the vast majority of instances, to wait until there is a safer time for operation. In other words, it is too late for early operation; it is too early for a late and a safe operation. I think that we cannot give too much credit to Dr. Ochsner for laying down for us a safe rule to follow in these cases. I am satisfied that by complete rest in such instances, and the withdrawal of all food and drink, so as to ellminate peristalsis, we give Nature time to shut off the infection from the general peritoneal cavity. It is the safe method to pursue.

There is one other point in which I agree with Dr. Haggard. I do not believe that in every case it is best to break up adhesions and remove the appendix. I think that as a general rule it will be best to drain the abscess cavity, and then, at a later time, say in from three to six weeks, reopen the abdomen and remove the appendix, when it can be done with perfect safety. I have most positive convictions on the subject of the treatment of appendiceal abscess. It is a safe condition if one will choose the right time and not attempt to do too much. This is not the time for ideal, but for life-saving surgery. Provide for drainage and never mind the appendix unless it prevails or is found after a limited search for it. If one does break down adhesions and looks for the appendix, there are potentialities which cannot be ignored. It is in my opinion dangerous surgery, and to do it is simply courting disaster.

DR. ROBERT T. MORRIS, New York: In regard to the stump of the appendix, it seems to me that we now have the question placed on rather simple principles since the experiments of Seelig showing that the mucosa disappears under the pressure of a simple catgut ligature. If we apply a simple catgut ligature to the stump, sterilize the stump with carbolic acid and neutralize that in thirty seconds with alcohol, this stump then lies against parietal peritoneum, which is just as good as any other peritoneum that the patient happens to have about him. In many cases we waste a lot of time in doing beautiful ideal work about the stump, and we forget that there is a patient. It is all stump and no patient. In a certain class of cases we must get through with the work as quickly as we can. It is with difficulty, perhaps, that we get down through adhesions and pus to the appendix. Are you going to do beautiful artistic work? Not a bit of it. Snap your forceps on the stump and leave them there until the next day. Then take them off. You will not have fecal fistula very often. If one occurs it has a tendency to care for itself.

The Ochsner treatment is one of the most important things that was ever brought forward, but instead of carrying it out exactly as Dr. Ochsner does, I believe in doing an operation consuming three or four minutes. Get in, snap forceps on the appendix, take out the burning gasoline stove, as Dr. Haggard says, and put in a little drain to take out the gasoline, too. You are not doing very much to that patient. You are not lessening his chances very much. Thirteen years ago I reported a series of cases with a 2 per cent. death rate. One or two very prominent men said that these statistics could not be accepted. It meant a selection of cases for favorable report, they said. There was no selection of cases. I operated in all consecutively. To-day half this audience perhaps does better work and gets better statistics than I did then. But at present we must remember that we are on the verge of a new era in surgery, the physiologic era, in which we are going to depend on phagocytosis and opsonins which the patient will manufacture himself to carry off the products of the infection better than we can do it for him with our artistic methods. And if that is true, what is the necessity of walling off with gauze through a big incision? Why fear getting pus on normal peritoneum? Let it get there; leave it there.

In regard to the safe interval that we have heard so much about. I have felt that the safe interval refers to the surgeon's reputation rather than to the safety of the patient. The interval is not the safest time necessarily. The safest time to operate is at the time when the patient is protected by his own hyperleucocytosis which he has called out. If the surgeon waits until that subsides, the patient has to manufacture a new lot of phagocytes for his interval operation.

DR. W. W. SKINNER, Geneva, N. Y.: I am fully in accord with the method of ligating off the appendix without inversion of the stump. Adhesions form not to dead tissue, but to injured and partially living tissue. I have a little modification, one that is a time-saver. I ligate the appendix itself with linen and the mesoappendix with iodin catgut. The two ligatures are held by the assistant side by side, with the ends presenting. I then pass a sharp-pointed hemostat through the clear space which is at the base of the appendix, where the blood-vessels arch over and leave a little clear space, like that which is found near the ovary. The ends of the ligatures are placed in the jaws of the forceps, drawn through, and given a half turn, or maybe a whole turn, which forms a chain stitch. The linen is thrown around the appendix and tied with one knot. The catgut is tied in one knot around the mesoappendix, slipping it down on the mesoappendix so as to ligate it as far as possible from the base to prevent puckering, as sometimes occurs. The appendix and mesoappendix are then cut across, before tying the second knots in the ligatures. This allows the ligatures to slip a short distance in tightening, a very important point, because one can thus crush the stump of the appendix and of the mesoappendix with the ligatures. Danger comes not from dead tissue, but from partially dead tissue. The ligation must be absolute. The advantages of the ligation method have never been fully stated. In the inversion method one makes a little crypt or pocket in which there may be gas-forming bacilli, which by burrowing between the intestinal coats may cause a widespread emphysema of the intestine, and possibly gangrene. The dangers of that procedure have never been fully stated, and I believe they exist.

DR. ERNEST LAPLACE, Philadelphia: Appendectomy must be simplified. It must be performed with rapidity and safety, having in view the prevention of hemorrhage and flow of intestinal contents, and, so far as possible, the prevention of subsequent adhesions. The appendix should be ligated at its base tightly and cut off 1 millimeter above the ligature with a pair of straight scissors. As a result, there is a bulging of mucous membrane; this should not be cauterized for fear of subsequent necrosis. The bulging mucous membrane should be cut off with curved scissors, leaving a sterile fibromuscular structure. This is an ideal method of removing the appendix quickly, safely and with no danger of infection. The stump of the ligated mesoappendix is then brought in contact with the stump of the appendix and tied. The surrounding serous surface is sewed over the stump, removing all danger of adhesion. The Ochsner method is ideal when it can be practiced. Unfortunately, we do not always know from the first the nature of the infection, which in some instances may, like erysipelas, run a most acute course to a fatal termination. Again, patients do not always give an accurate history of the case, declaring the attack to have started a few hours before, whereas in reality it may have lasted several days. These misleading elements in diagnosis render a certain number of cases unsuited to the Ochsner method of treatment, and, therefore, while appreciating the great value of the method, we should never cease to exercise the greatest judgment in applying it in each particular case.

DR. W. J. MAYO, Rochester, Minn.: Dr. Ochsner's position to-day is exactly his position of ten years, eight years, and five years ago. It is not Dr. Ochsner who has changed, but the rest of us. What was the cause of this particular change? Dr. Ochsner and I have been closely associated, and I have learned very much from him during the last fifteen or twenty years. Dr. Maury brought out a very important point, and that is the great necessity of keeping the stomach empty and removing the fluids that regurgitate back into the stomach. We say to our interns in the hospital at Rochester: "Take the stethoscope off your neck and carry a stomach tube around in place of it." We reduced the mortality in gall-stone and stomach cases 50 per cent. when we discovered that with the stomach tube we could remove these fluids and that by removing many cases that formerly terminated fatally went on to recovery. It can be pretty nearly put down as an axiom that when the surgeon sees the patient on the morning after the operation and notices a little green spot on the clothing, or if the patient is restless and uneasy, he should pass the stomach tube. There is nothing to which we can draw attention that will be of greater importance to us in getting results than the proper use of the stomach tube. Keep the stomach empty. Dr. Guerry's results are marvelously good and show the wonderful improvement which has come about within the last few years in the operative treatment of appendicitis.

DR. A. J. OCHSNER, Chicago: The last time we met in Atlantic City, after the appendicitis fight was over, I predicted that our friends, the enemy, would come over to our side before we met in Atlantic City again. The reason they have come over is this: The country doctor, with but a slight amount of training, but with the good sense of listening and doing exactly what we recommended, went home and carried out this plan of treatment. Afterward he found that his mortality was less than that of the greatest surgeons in the country. That is the reason why surgeons, internists and physicians in general now carry out the fundamental principles involved in that treatment. They consist primarily in absolute rest. I am very glad that Dr. Maury hinted at the secret of it to-day. He removes the cause of the poisoning, the cause of death from intestinal obstruction, by washing out the stomach and removing the septic material, and washing out the stomach again if necessary and never putting anything into the stomach until the danger is over. Never cause any return of peristalsis by giving a large enema, and never give cathartics or food to start up the peristalsis. In that way one will provide conditions such as Dr. Maury provides in his experimental work. In the meantime there has come to our aid a knowledge of the opsonins, of the sterilization of abscess cavities in the region of the appendix and of the pelvis, so that we have now, I believe, conditions which are perfectly plain. So long as the appendix still contains all the septic material it should be removed at once. After that, even if a surgeon has almost superhuman skill, like Morris, Mayo, Deaver and others, he should not remove the apepndix until it is safe for the patient. This condition of safety can be accomplished in more than 98 per cent. of all cases of gangrenous or perforative appendicitis by gastric lavage, giving absolutely no nourishment of any kind and no cathartics by mouth, by giving no large enemata, by giving continuous normal salt solution by the drop method by rectum, and by giving exclusive rectal feeding as shown so well by Dr. Guerry.

DR. J. W. D. MAURY, New York: We transfused all these animals, using the simple glass tubes Dr. Brewer devised. They work very well; the blood does not clot in them for eight minutes, and one can exsanguinate the animal before that time.

The transfusion has been preceded by a moderate degree of bleeding. Then we have devised in our laboratory a method for the reconstruction of the common bile duct, which I think may be of interest to you. It was devised by one of the students, and consists in the application of the omentum to the side of the duodenum, along which a simple rubber tube has been placed which has a sponge attached to the end of it, which is passed into the duodenum through a small opening. It is a very ingenious device. Of course, the common bile duct is removed, and the tube takes its place. This tube is ultimately removed by peristaltic traction on the sponge. We have not had an opportunity to employ this technic long enough to see how permanent the good results will be. The fistula is not lined with fibrous tissue but with endothelial cells so that we hope its usefulness will be permanent. We have some cases which have been functionating perfectly for three months.

WORK-CURE

A REPORT OF FIVE YEARS' EXPERIENCE AT AN INSTITUTION DEVOTED TO THE THERAPEUTIC APPLICATION OF MANUAL WORK *

HERBERT J. HALL, M.D.
MARBLEHEAD, MASS.

It may be stated without fear of contradiction that suitable occupation of hand and mind is a very potent factor in the maintenance of physical, mental and moral health in the individual and in the community. Conversely, it has been recognized, though not too well emphasized, that the right kind of work, properly carried on, may be a valuable remedy in certain functional nervous diseases when unsuitable occupation has been the rule, when suitable occupation has been misused or when idleness, either from choice or necessity, has been the habit.

The normalizing effect of suitable manual work or even of well-chosen intellectual work on the neurasthenic or psychasthenic who has been idle or overworked and who has been for years the prey of mental and nervous complications, has only to be seen to be profoundly appreciated. In these cases in which the tired mind tortures itself with doubts and fears and spends the long days in useless self-analysis and in appreciation of mental and physical suffering, it is probable that progress toward health is often indefinitely delayed because no occupation is found or even attempted. But the difficulties in the way, first, of finding a suitable employment for the neurasthenic, and then of inducing the patient to exert himself in his own behalf are very great and have made progress along such lines quite slow. Unfortunately, it is also true that ill-advised work can be productive of positive harm and may result not only in deepening discouragement, but in the intensifying of all symptoms.

I have for a long time felt that adequate study of this problem could be made only in an institution devoted to that object. It is no more reasonable to suppose that such a complex remedial measure as work can be successfully used haphazard than that drugs and other agents should attain their fullest usefulness without the aid of laboratory or hospital experience.

Having these ideas rather clearly in mind, though without the cheering knowledge of similar work having been done elsewhere, I established, some five years ago, a small workshop for the making of hand-woven fabrics in cotton, wool and linen. The venture was looked on as a strange one for a busy general practitioner, and, indeed, the growing industry has been a serious financial burden and a great consumer of time. But the lessons the shop has taught and the ease with which it has made possible the management of an increasing number of neurasthenic patients have in every way justified the experiment.

The work-cure has proved to be an excellent background and basis for medical treatment of the usual sort and for psychotherapeutic measures of one kind or another. It has also, in a surprising number of neurotic cases, proved almost the only remedy needed to bring about satisfactory improvement.

In pursuance of this industrial idea at Marblehead a number of the artistic crafts have gradually been introduced. These crafts are chosen because of their almost universal appeal, because of their essential dignity and because of the possibilities of very gradual acquirement. The crafts are chosen also because proficiency along such lines is a thing which may well be valued by any one, whatever the education or position in life may be.

From the first, the patient is taught to economize strength—to do deliberately and without undue excitement what simple manual work may be deemed advisable. He is shown, for instance, that he can saw through a piece of wood without grasping the saw with a crushing grip. The simplest mechanical acts are often at first chosen, as they give in themselves the least opportunity for mental and physical fatigue. These mechanical acts are repeated, with frequent intervals of rest, until they are accomplished normally and without fatigue. Gradually the difficulties and requirements of the work are increased, the essential point being the economy of nervous energy and the maintenance of a simple and direct mental attitude.

If the work has no interest to the patient he is asked to do it just the same and he is encouraged to expect results in the shape of better physical strength at least. There is never any pushing or urging, but always a plain statement of facts. "Do this, and you will in the end benefit by it, although at present it may seem to make you worse." The patients, as a rule, enjoy the novelty of the treatment and forget for the time something of their worry and suffering.

It is not hard to believe that after a certain amount of such mechanical education the mental processes take the cue, so to speak, and the patient finds himself thinking as well as acting in a simpler, more methodical way. It has been found by experience that if progress is made gradual enough the occupation may be pursued with astonishing benefit even in cases in which fatigue and pain would seem to prohibit any sort of activity.

The idea that manual work is wholesome and developmental, and that it may pave the way for successful medical treatment, or that it may be in itself a curative agent, is, of course, not new. But the systematic use of manual work for therapeutic purposes in an institution devoted to this object is believed to be decidedly new, if not heretofore untried in this country.[1]

It has seemed from the first that, to be most successful, the workshop should be pretty well divorced from

* The research on which this article was based was aided by a grant from the Proctor Fund, administered by Harvard University.

1. It seems that some such plan as this has been in operation in a public institution in Germany since 1899, in which year the first patient was admitted to the "Haus Schönow" under Dr. Lähr. At about this time also Grohmann in Zurich instituted a similar work, which is still in successful operation. Mention should be made of the excellent work of Dr. Blumer at the Butler Hospital in Providence and in one of the state asylums in New York when his efforts in the direction of the adequate employment of the insane were among the earliest in this country. Dr. J. J. Putnam at the Massachusetts General Hospital has within the past few years been making successful application of industrial therapeutics, as has also Dr. Fuller at the Adams Nervine Asylum. Mention should also be made of the work of Dr. Brown in California. Doubtless a good many individuals and many institutions not known to me are making daily use of similar methods of treatment.

the sanatorium; consequently the attempt has been made to bring about this condition. It may be said that the shops at Marblehead represent primarily a practical industrial plant. The patients are apprentices and pupils; they are, of course, especially provided for in the way of opportunities for rest and in the matter of ordinary medical treatment, but no attempt is made to carry out the elaborate treatment, hydrotherapeutic, electric, etc., of the sanatorium. If the patient needs these things he should stay at the sanatorium until he has received their full benefit.

If we are to restore the patient to the fullest usefulness, he must finally give up these artificial aids, and it has seemed to me that they had better be given up, in the main, when the work is begun. Perhaps this is a mistaken idea and it may prove that industrial treatment may be carried on with success at the sanatoriums. The danger, theoretically at least, is that in the sanatoriums the work will too often be looked on as a pastime, that it will be too apt to occupy a secondary place and, therefore, to fail of its full value to the individual.

A division of the twenty-four hours into changeable periods of work, rest and recreation, plenty of air, wholesome food, wise suggestions and such medical treatment as may be indicated—these simple elements, together with a pretty complete detachment from all other obligations in life, represent in brief the industrial system of treatment.

This plan of treatment must exclude, for the time being, patients who are in need of constant care and nursing; but, owing to its great flexibility, it is available in some form in the management, at one stage or another, of a wide range of affections in which there exists a weakening or perversion of the functioning of mind or body.

If these premises are true, and the evidence is that they are, it should be of interest to the profession to know that such an industrial plant can be started and maintained by a general practitioner without initial capital and with very little outside assistance. The principal aid which the institution has received was in 1906, when I received from the Proctor fund, which is in the keeping of Harvard University, a grant of $1,000 "to assist in the study of the treatment of neurasthenia by progressive and graded manual occupation." Last year a friend of the institution erected, at an expense of about $600, an addition to one of the buildings. Other gifts amounting to $300 have been received from time to time from various sources and applied to the work. Although the plan has turned out to be more of a charity than its founder hoped, it has treated, in the main, people who are able to pay something. I personally have made no attempt to provide food and lodgings; but use has been made of a small hotel in the immediate neighborhood. The work has been conducted, therefore, under somewhat unfavorable conditions, with little or no nursing care and with living conditions such as are ordinarily considered suitable for well people and not for invalids.

The crafts employed at Marblehead have been handweaving, wood-carving, metal-work and pottery. They are named in the order of their clinical or therapeutic usefulness. The weaving has proved of unexpected value in that it provides a lively and growing interest with immediate and tangible results and from the fact that, as a general exercise, the old-fashioned hand-loom is a success. These great looms require simple but strong and effective motion of arms and legs simultaneously. Another advantage is that the coarse-textured woven fabrics do not require too close a use of the eyes.

Wood-carving affords excellent use for hands, eyes and muscles. The wood-work is particularly useful to beginners, as it gives opportunity for broad free arm movements of especial service as a balance to the finer, closer work which taxes the patience and endurance.

The metal-work is perhaps the least useful from the therapeutic point of view, and yet in certain cases it is of especial value. It has against it the facts that it is slow, requires very accurate fitting and measurements and dexterous handling of special tools. In its favor are the moral support and satisfaction which comes from having mastered a hard, intractable material. It is true, also, that some of the processes are relatively simple—notably that of polishing. Another good feature of this craft, particularly for pupils well on the way to recovery, is to be found in the hammering. The interest in the work is often so great that the noise and shock of the hammering pass unnoticed, thus accustoming the patient to harsh sounds—a not unimportant part of the industrial plan.

The pottery industry, although most of this work is done by the craftsmen rather than by the pupils, has developed very rapidly. The potter, who came directly from the State School of Pottery at Alfred, N. Y., proved to be a man of unusual ability. This young man with an able corps of designers and assistants has in a few years developed a ware which now ranks very high among the best ceramic products of this country.

It is interesting and suggestive to note that six out of the ten people now employed in teaching the crafts or as assistants came to these shops originally because of some physical or nervous handicap, but are now performing in full or nearly full capacity the exacting work of their positions.

I approach the matter of classification of cases and tabulation of results with a good deal of diffidence—not that I am ashamed of the results, but because it is so easy to overestimate or underestimate the results of this kind of treatment and because classification of the functional nervous conditions is still very unsatisfactory. During these first years of the institution most of the available energy and money has been devoted to the improvement of the industrial plant. The sanatorium possibilities have been sadly neglected and no attempt has been made to attract patients otherwise than by the excellence of the shops themselves. The figures are more interesting, however, on that account, for they suggest much better results with a constantly improving equipment. During the five years exactly 100 patients have been treated—9 males and 91 females. The accompanying table gives, as nearly as can be estimated, the results of treatment.

RESULTS OF WORK-CURE

Name of Disease.	Number Treated.	Improved.	Much Improved.	No Relief.
Hysteria	18	15	1	2
Insanity *	5	2	2	1
Neurasthenia severe	12	7	4	1
Neurasthenia mild	20	12	8	0
Neuroses	17	8	5	4
Psychoses or fixed idea	8	1	3	4
Unclassified	20	14	4	2
Totals	100	59	27	14

* It is not intended to treat at Marblehead any case of insanity. These cases were accepted in the early days of the institution.

Among these cases there were three cases of chronic appendix inflammation, subsequently relieved by operations. There were fourteen cases of defective vision wholly or partially relieved by glasses.

It has been somewhat difficult to keep track of the patients, but relapses have been very rare—relapse, that is, to conditions as bad as or worse than those for which relief was originally sought. Not counting those who have remained as teachers and assistants, the average stay has been three months. Ten patients have returned one or two times for continuance of treatment or instruction. As far as can be ascertained, about 25 per cent. of the patients have in some measure kept up their work and their interest in the work after leaving the shops. In a number of cases outfits of looms and accessory sets of carving tools, etc., have been furnished to pupils who wished to continue the work.

It should be said that the shops have to some extent been used as a school of applied art by persons who are not ill at all, but who wish to study one or more of these ancient crafts. Incidentally, too, there have been pupils who came as students and not as patients who found unexpected relief from cares and troubles in the atmosphere of quiet work.

The shops have already taken steps toward the establishment of a training-school where young women or nurses who wish to become qualified as teachers of these crafts may obtain the necessary training. It is hoped that these young women may extend the usefulness of the shops by acting as private instructors in the homes of patients or by teaching at other institutions.

It must not be inferred that progress has been altogether easy. On the contrary, as has been stated, the school has represented a serious financial burden. Mention should be made here of the fact that several of the craftsmen and teachers, appreciating the humanitarian element of the work and in view of possible future financial success, have been willing to work for a very little money—practically their living expenses—and in one case without any reimbursement, thus making possible the continuance of the institution.

The plant is very nearly self-supporting now, largely from the sale of its products, which are of excellent quality, thanks to the intelligence and constant activity of the skilled designers and craftsmen, to whom too much credit cannot be given.

I have found that the ideas embodied in this work appeal, as a rule, not only to the profession, but to people generally, and, finally, to the patients themselves, who rarely object to the life and who have often, indeed, found in it the elements of happiness and success.

69 Pleasant Street.

PRINCIPLES UNDERLYING SURGERY OF THE SPLEEN

WITH A REPORT OF TEN SPLENECTOMIES *

WILLIAM J. MAYO, M.D.
ROCHESTER, MINN.

Our knowledge of the function of the spleen has been so vague, and our ability accurately to determine its physical proportions so unreliable, that it has been impossible to recognize diseased conditions until they reached a stage so advanced that splenectomy became a necessary consequence. Therefore, surgery of the spleen has been destructive in character. Recent investigations lead to the speculation that many of the anemias and associated blood states may ultimately be best treated by operative procedures directed to the spleen and other blood-forming organs.

In its ontogeny the spleen probably goes back to a time before the development of the cerebrospinal nervous system. This is indicated by the fact that its only known nerve supply consists of filaments derived from the splanchnic sympathetic to the capsule, stimulation of which causes contraction. It is an organ of internal secretion controlled by chemical stimulation through the blood stream, in many respects resembling the liver. We may surmise that this form of stimulation has been quite adequate for function, otherwise the spleen would be more closely associated with the sympathetic ganglia, as are the adrenals and pituitary body. The internal secretion of the adrenals and pituitary produce their effect not only by chemical stimulation through the blood, but also by direct action on the sympathetic ganglia which enables a very small amount of secretion to produce widespread results. The sympathetic nervous system can be compared to a piano, the internal secretions being the fingers of the player, or to an internal telephone exchange within a building; and it enables small organs with scanty secretion, like the parathyroids, to work in harmony with other organs of internal secretion.

Evidently the internal secretion of the spleen is not important, as splenectomy does not produce serious results, the associated organs taking up the function.

A study of the spleen leads to the conclusion that it possesses three distinct functions: First, it takes part in blood formation, in which it is associated with the bone marrow, lymphoid and adenoid structures of the body. Second, it is a destroyer of worn-out red blood cells. Third, it acts as a filter of micro-organisms which may be contained in the blood and which are passed thence to the liver, probably for complete destruction and also as an aid to the liver in carrying on certain functions in relation to the metabolism of the food.

The fetal blood is derived from the spleen, liver, bone marrow, lymphoid and adenoid structures of the body. The liver loses this function some time before birth. In the adult the red cells are largely formed in the bone marrow, and the white cells in the lymphoid and adenoid tissues, including the spleen. In health the spleen loses its power to develop the red blood corpuscles and retains that of white cell production only to a limited degree, its chief function being to destroy worn-out red blood corpuscles. The ancestral blood corpuscle, from which both red and white have their origin, is probably the mesenchyme cell, a form of lymphocyte which appears first in the fetal blood. In leukemia there is a reversion to the ancestral lymphocyte or fetal type. In the grave anemias there is a tendency to reversion to primitive red blood cells, showing granular corpuscles of various sizes and shapes.

The spleen receives its blood supply from the celiac axis, identical in origin with the blood supply of those important derivatives of the foregut—the stomach, pancreas and liver. It does not, however, send its blood directly back into the general circulation, but the splenic vein joins the superior mesenteric and gastric veins to form the portal system.

It would appear that the liver, among other functions, neutralizes toxins and kills bacteria which may be picked up by the portal radicals from the digestive tract. Perhaps the spleen with its huge blood supply acts like a large lymphatic gland performing some analogous function for the general circulation; but that its blood must be still further changed by passage through the liver

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

before entering the general vascular system is shown by the method of venous return. This association of the liver and spleen is shown in the enlarged spleen so often seen in cirrhosis of the liver, and apparently in such cases without especial effect on the constituents of the blood, and also in the late stage of splenic anemia (Banti's disease) is often associated with secondary cirrhosis of the liver.

The first evidence of a spleen is a collection of mesenchyme cells in the posterior mesogastrium close to the developing pancreas. Its growth is fairly uniform, but there is considerable normal variation in size. It is the largest of the ductless glands, being five by three inches in diameter, weighs about 200 gm., and fits into the curve of the diaphragm behind the ninth, tenth and eleventh ribs, where it is molded to the fundus of the stomach. It is completely invested by peritoneum and is held in place by two folds of this membrane, the gastrosplenic omentum and the lienorenal ligament, both of which are attached about the hilum.

The blood vessels in the spleen travel in the trabecular framework to the pulp and Malpighian corpuscles, and quickly lose all but their endothelial coat. The scanty lymphatics are confined to the capsule. The trabecular framework contains much non-striated muscular tissue, which permits considerable rhythmic change in size during the digestive period.

Its protected situation, covered, as it is, by the lung and overlaid by the stomach and colon, renders it exceedingly difficult to ascertain moderate changes in size. Our ability accurately to map out a moderately enlarged spleen by percussion is open to question. I have examined a number of spleens manually during operation for other causes, and have been surprised at the inaccuracy of the ordinary methods of physical diagnosis made before operation. Comparatively few abnormal spleens are really recognized as such until the splenic border can be palpated below the free margin of the ribs.

Heretofore we have been unable to diagnose with any degree of exactness, until a late stage, the actual physical relations of the spleen to the disease with which it is either directly or indirectly associated. Therefore, our only surgical recourse has been splenectomy. It is altogether probable that certain diseases of the blood are due to an excess or perversion of splenic function, which could be controlled by operative diminution of its blood supply through ligation of an arterial division, or, by partial splenectomy, just as the thyroid gland is treated in Graves' disease.

I believe that surgeons can do much to establish a better understanding of the relation of the spleen to the anemias by routine examination of this organ during abdominal operations where an altered blood state exists.

Splenic enlargements, other than tumors, can be grouped in three general classes:

First, leukemias, in which the spleen pulp becomes converted into tissue resembling bone marrow, and in which the spleen, in connection with all the blood-forming organs, rapidly produces white blood corpuscles of the ancestral type, much as epithelial cells run riot in cancer—a probable reversion to the fetal form of blood.

Second, splenic anemia, the type in which the enlargement of the spleen is accompanied by a diminution of and change in character of the red blood corpuscles—apparently an excess of the adult function of the spleen, producing an unnecessary destruction of the red corpuscles.

Third, splenomegalia, an enlargement of the spleen of unknown causation, without marked blood changes or any apparent serious interference with the health other than mechanical. This class is one of convenience only and is closely related to the splenic anemias.

In addition to these three classes, two conservative groups of enlargement of the spleen can be recognized: First, the compensatory splenic hypertrophy which accompanies cirrhosis of the liver, and, second, enlargements which are the result of infectious diseases, i. e., tuberculosis, typhoid, syphilis and malaria (ague cake).

The sheltered situation of the spleen renders approach for purposes of operation exceedingly difficult unless the organ is more or less movable, which happens in a considerable percentage of cases.

We have usually made an incision through the left semilunar line and, if necessary, carried the upper end along the costal margin to the ensiform cartilage. Willy Meyer has added greatly to our means of approach by mobilization of the overlying chest wall. "The seventh, eighth, ninth and tenth costal cartilages are divided with the knife immediately in front of the ribs, also the union of three at the sternum." As yet, however, we have not found the Meyer procedure necessary. In some cases a left transverse incision joining the longitudinal will be found convenient.

In advanced disease adhesions will often be encountered, especially to the diaphragm, the separation of which will occasionally be difficult until after the splenic pedicle has been secured.

The most important step in the operation, if the vessels are fairly sound, is to grasp the vascular pedicle temporarily in rubber-covered elastic clamps. This must be done with great care, as the splenic veins are very delicate and tear readily. To grasp securely the pedicle of a large spleen the organ should, if possible, be "turned turtle" or at least sufficiently so to enable the hand to grasp the splenic vessels. With the fingers and blunt dissection a passage way is made around the pedicle and the elastic clamp applied and tightened down sufficiently to control the circulation until the spleen can be entirely separated from its attachments and delivered outside the wound. If splenectomy is the object of the operation, the pedicle can be secured at any time after the application of the elastic forceps, which are applied as close to the root as possible so as to leave ample space distal to the forceps for ligation.

If partial resection is to be done, temporary compression of the pedicle seems to be harmless unless there are gross vessel wall changes, and after the application of the clamp the desired amount can be resected and the hemorrhage controlled by buttonhole catgut suturing with a round needle, in a manner similar to that of resection of the liver.

It has been shown experimentally that reduction of the arterial supply by ligation results in atrophy of the spleen, and that as long as the veins are left intact, necrosis does not occur. If the splenic artery divides in the hilum, ligation of branches would appear to be an active competitor of partial splenectomy. We have not found the marked alterations in the walls of the blood vessels which have been shown to be often present at postmortem and which probably represent a terminal condition.

Our experience in surgery of the spleen has been limited to thirteen cases, three of which were conservative operations. One case was a gunshot injury in which hemorrhage from the lacerated spleen was readily con-

trolled by buttonhole catgut suturing and gauze packing. In the second case, a movable spleen with severe attacks of pain from torsion of the pedicle was cured by fixation by means of suture and gauze packing. The third operation consisted of evacuation and drainage of a typhoid splenic abscess four months after the initial attack of typhoid fever.

Ten splenectomies were performed with nine recoveries. One case was a huge lymphosarcoma. The patient is alive and well now, over three and a half years after operation. The second case was one of tuberculosis of the spleen with primary recovery; present condition unknown. Four cases were splenic anemia; all of the patients recovered and were either entirely cured of their anemia or were greatly improved. Two cases were Banti's disease; one patient recovered and one died. Two cases were splenomegalias, that is, enlarged spleens of unknown origin. Both patients recovered.

Subsequent to four of the splenectomies for splenic anemia the patients complained of pain in the long bones at intervals for several months.

I would call the attention of those especially interested in splenectomy to the very able papers on the subject by Dr. J. Collins Warren[1] and Dr. George Ben Johnson.[2]

A brief history of the ten splenectomies has been compiled by Dr. Donald Guthrie, and is herewith appended.

CASE 1 (617 G).—Miss B., aged 16, for three months had had attacks of rather sudden pain beginning in the back and referred around the left costal arch, severe at times, usually lasting a half hour to two hours; no nausea or vomiting; pain not attributed to food; no loss of weight.

Examination.—Anemic young girl; heart and lungs negative; stomach large and splashy; tumor in left hypochondrium extending downward and forward to midline; palpation showed it to be spleen. Pelvis negative, urine contained albumin and casts. Blood: Hemoglobin, 75 per cent.; reds, 4,000,000; whites, 4,000. Diagnosis, splenic anemia.

Operation.—April 7, 1904; splenectomy. Pathologic condition, tuberculosis.

Present condition unknown.

CASE 2 (3539 P).—Mrs. M., aged 41, married ten years, with two children, youngest aged 4, no miscarriages, menstruation regular, had had from 8 to 10 years of age repeated attacks of malaria; none for fifteen years. Health was perfect until four years before coming under observation. After birth of last child patient noticed enlargement in region of spleen; it was not noticed again until seven months before examination. The past four to six months there had been some dyspnea with anemia, beginning at that time.

Examination.—Fairly well-nourished woman, anemic, heart and lungs negative, huge tumor extending from fifth rib down across abdomen one inch past midline into pelvis, notched. Liver extended one inch below costal margin, pelvis negative. Blood: Hemoglobin, 50 per cent.; reds, 4,504,000; whites, 4,600. Urine negative.

Operation.—Nov. 14, 1905. Splenectomy. Adhesions to tail of pancreas, a small piece of which was removed. Gastrohepatic ligaments and adhesions to diaphragm ligated. Some free ascitic fluid. Recovery good. Pathologic report, lymphosarcoma of spleen, weighing 2,375 gm. (8.67 pounds).

More than three years later the patient is enjoying splendid health; has gained 40 pounds in weight.

CASE 3 (8869 G).—Miss S., aged 27, had known of enlargement in left abdomen for fifteen years. She had frequent attacks of digestive disturbance with anemia; two years before coming under observation she had a first attack, lasting five days, of acute pain in the upper abdomen, followed by edema; two weeks later a similar attack; then she was perfectly well for nine months. The following summer she had acute pain in left hypochondrium with much soreness in region of spleen; was well until summer before operation, when she became weak and much depressed. Three months before operation she had an attack of violent pain through the back, arms and left side of the abdomen lasting four days, followed by general edema; was ill for seven weeks.

Examination.—Jan. 6, 1907. Anemic young woman. Slight icterus; edema present about ankles and face, heart and lungs negative, huge tumor extending from under left costal arch downward and forward to the right, past the midline, filling the whole abdomen, and into the pelvis. Tumor hard and notched. Liver enlarged three inches below costal arch, pelvis negative, urine negative. Blood: Hemoglobin, 80 per cent.; reds, 5,200,000; whites, 4,800. Diagnosis, Banti's disease.

Operation.—Jan. 7, 1907. Splenectomy. Spleen adherent to diaphragm and stomach. Some adhesions to omentum and abdominal walls. Large white cheesy spots on surface. Accessory spleen entirely separate at the base of the omentum, size of pullet's egg, nearly round and very movable; not removed. Hypertrophic cirrhosis of liver with perihepatic adhesions. Ascites, several quarts of fluid. Omentum placed in adherent area to secure adhesions. Patient died twelve hours later from shock and hemorrhage. Pathologic report, chronic hyperplasia, spleen weighing 11 pounds, 12 inches long, 8 inches wide, 3 inches thick.

CASE 4 (1074 P).—Mrs. McD., aged 27, had two children, youngest aged 3. Menstruation was normal; patient had had poor health for years; sick headaches every two to four weeks. For a year she had been weak, tired and unable to work. During this time she had a sharp pain at menstrual period radiating from the left costal arch to the clavicle. She had known for a year of splenic enlargement, which had grown slowly.

Examination.—Fairly well-nourished woman, pale; heart and lungs negative; spleen extended four inches beyond midline and filled the pelvis, hard and notched. Uterus retroverted; urine negative. Blood: Hemoglobin, 57 per cent.; reds, 5,388,000; whites, 3,000; polymorphonuclears, 42 per cent.; lymphocytes, 58 per cent. Diagnosis, splenomegaly.

Operation.—May 17, 1907. Splenectomy and extensive suturing of adhesions to diaphragm and under surface of liver to check oozing. Gauze drain through left loin. Recovery good. Pathologic report, chronic hyperplasia. Weight, 6.33 pounds.

Patient now enjoys excellent health.

CASE 5 (9315 A).—Miss T., aged 37, menstruation normal, eight months before coming under observation noticed enlargement and hardness in left side of abdomen under costal arch. Steady growth to present size. General health fair.

Examination.—Fairly well-nourished woman, pale; heart and lungs negative; large tumor extending from under left costal margin downward and forward into the pelvis a few inches above symphysis, sharp-edged and notched. Urine contained albumin, granular casts, a few leucocytes. Blood: Hemoglobin, 49 per cent.; reds, 4,100,000; whites, 4,600. Cystoscopic examination negative except that catheter met an obstruction in left ureter, probably due to pressure of tumor which was easily passed. Diagnosis, splenic anemia.

Operation.—May 11, 1908. Splenectomy, spleen 12 inches long, 8 inches wide, 3 inches thick. Peculiar mottled appearance. Pathologic report, chronic hyperplasia. Weight, 10¼ pounds.

Patient's health is now excellent; she has returned to work.

CASE 6 (A 11038).—Mrs. W., aged 39, had two children, youngest aged 15. Menstruation regular. Patient had been operated on elsewhere two years ago, left nephrorrhaphy. For ten years she had had a dull aching pain and a sense of pulling in the left lumbar region; for years severe migraine attacks, requiring morphin and chloroform. There was much tenderness over abdomen and pain at left costal arch referred into the lumbar region. A tumor was to be felt in the region of the spleen and left kidney.

Examination.—Thin woman, pale; heart and lungs negative. Tender at left costal arch and in lumbar region; pelvis negative; urine negative; cystoscopic examination negative. Blood: Hemoglobin, 80 per cent.; reds, 4,000,000; whites, 14,000; polymorphonuclears, 56.6 per cent.; lymphocytes, 43 per cent.;

1. Warren, J. C.: Ann. Surg., 1901, xxxiii, 513-533.
2. Johnson, B.: Ann. Surg., 1908, xlviii, 50-65.

eosinophiles, 0.3 per cent.; basophiles, 0.1 per cent. Diagnosis, splenic anemia.

Operation.—Splenectomy. June 27, 1908. Pathologic report, chronic hyperplasia. Weight, 350 gm.

The patient's present health is good.

CASE 7 (A 10324).—Mrs. L., aged 49, had two children, youngest aged 12; no menstruation for two years. Nine months before coming under observation patient noticed tumor in the left abdomen which had grown gradually. Patient had become weak but lost little in weight; had some edema of feet at times; no urinary disturbance.

Examination.—Fairly well-nourished woman, pale; heart and lungs negative; large tumor in the region of the spleen, sharp-edged and hard. Cystoscopic examination negative. Pelvis negative. Blood: Hemoglobin, 70 per cent.; reds, 2,960,000; whites, 6,200. Polymorphonuclears, 93 per cent.; lymphocytes, 4 per cent.; eosinophiles, 3 per cent. Diagnosis, splenic anemia.

Operation.—July 2, 1908. Splenectomy, spleen filling whole of left of abdomen to median line, notched on posterior surface. Adherent to under surface of diaphragm, tail of pancreas, and to posterior wall of stomach. Removed with difficulty. Pathologic report, chronic hyperplasia. Weight, 7 pounds.

Fig. 1.—Temporary compression of the vascular pedicle of the spleen.

After operation patient was very ill with pneumonia, but recovered. Three letters report steady improvement. She is now in good health.

CASE 8 (A 18026).—H. N., aged 26, had had pain in epigastrium and left costal arch, on and off for two years; weak tired feeling of late. He had lost 20 pounds in the last two years; no urinary disturbance.

Examination.—Poorly nourished young man; heart and lungs negative. Mass in left hypochondrium, moved downward to level of umbilicus on inspiration, rather soft, no sharp edges. Urine negative. Blood: Hemoglobin, 88 per cent.; reds, 4,100,000; whites, 10,200; polymorphonuclears, 65 per cent.; lymphocytes, 22.5 per cent.; eosinophiles, 2 per cent.; basophiles, 0.5 per cent.; transitional forms, 5 per cent. Diagnosis, splenomegalia, abdominal tumor from enlarged spleen.

Operation.—Dec. 30, 1908. Splenectomy, spleen extending a hand's breadth below the rib margin to midline. A number of accessory spleens in pedicle which were not removed. Recovery good. Pathologic report, chronic hyperplasia. Weight, 430 gm.

Patient is much improved and able to work.

CASE 9 (A 20818).—Dr. K., aged 30, had had malaria in 1898; was told that spleen was enlarged. Four years before coming under observation, after being in Cuba fifty-one days, he had amebic dysentery. Amebæ were found in stool only second summer, but patient had three summer attacks lasting several months each time. General health was apparently good except for pallor. Weight same, 150 pounds until April, 1908, when he vomited up some blood and passed large amount by bowel; in May, 1908, he had similar hemorrhage just after a meal. Case was diagnosed as ulcer of the stomach. Fasting treatment given. Two months later he had bloody stools. Blood count taken; hemoglobin, 50 per cent.; reds, 3,500,000; whites, 3,000. Splenic enlargement found, which had been noticed in 1898. In August, 1908, patient had severe hemorrhage by mouth and bowel; was confined to bed, very weak and anemic. In October, 1908, he was getting ready for gastroenterostomy, when he had the most severe hemorrhage of all. Hemoglobin dropped to 15 per cent and reds to 1,000,000. In September, 1908, he had ascites, was tapped six times since; 4½ to 9 quarts obtained each time, last tapping one week before examination.

Examination.—Thin young man, very pale and sallow, heart and lungs negative. Weight, 140. Appetite good, bowels and urine in good condition. Tumor in left hypochondrium, extending from sixth rib down and forward to level of umbilicus, 1½ inches extent to midline. Tender, hard but not notched, liver small, extending from fourth to eighth rib; ascites marked; separation of recti. Blood: Hemoglobin, 47 per cent.; reds, 3,300,000; whites, 2,500. Small lymphocytes, 17.5; large, 7. Polymorphonuclears, 73; transitional forms, 5 per cent.; eosinophiles, 1.5; basophiles, 0.5. Diagnosis, Banti's disease.

Fig. 2.—Lower's forceps for compression of the pedicle of the spleen.

Operation.—Mar. 4, 1909. Splenectomy. Ascites. Liver cirrhotic. Pathologic report, chronic splenitis. Weight, 1180 gm. Patient was aspirated on tenth day; four quarts removed; fluid did not reaccumulate. Improvement in blood and weight good. Patient is gaining rapidly.

CASE 10 (A 22026).—Mrs. B., aged 53; mother died of spleen trouble; father of tuberculosis at 79. Patient had had no children, no miscarriage; menopause six years before coming under observation. At 20 years of age patient was in bed twelve weeks with articular rheumatism. For eight years, off and on, she had pain or ache in epigastric region, usually steady for a month, then relief for four to eighteen months or more, with perhaps two or three days' ease at a time, during period of attack. She said a little blood would come up in the mouth during spell, and ease would follow for a day, but there was no cough or vomit, no food distress, no loss of appetite and only a little loss of flesh in the past six months. She had had no bowel complaint since November, 1908. Ache in epigastrium had been steady. At Christmas time patient noticed a hardness in epigastric region, more to left.

Examination.—Well-nourished woman, pale, skin wrinkled and dry, heart and lungs negative. Tumor extended down and forward from sixth rib, left side to level of umbilicus, one inch inside midline. Tumor moved on respiration, notched and tender. No ascites found. Blood: Hemoglobin, 68 per cent.; whites, 2,500; reds, 3,600,000; small lymphocytes 23, large 3; polymorphonuclears, 72; transitional forms, 1; basophiles, 1. Urine, sp. gr. 1020, acid, trace of albumin, few hyaline and granular casts. Diagnosis, splenic anemia.

Operation.—April 13, 1909. Splenectomy. Pathologic report, chronic splenitis, typical sago appearance. Weight, 8 pounds.

Patient's present condition is good.

ABSTRACT OF DISCUSSION

DR. A. J. OCHSNER, Chicago: The field of spleen surgery is at present exceedingly circumscribed, for the reasons given by Dr. Mayo, and because we do not yet understand the full relation between enlargement of the spleen and anemia. Twenty years ago, in 1889, while the Italians were making use of the advancement in abdominal surgery and applying it to the removal of large spleens, which were so numerous in Italy, I had an opportunity of assisting my chief, at that time Dr. Charles T. Parkes, in the removal of a number of spleens. We soon learned that the spleen in which removal was desirable could not be removed with safety to the patient, and in the case of other spleens there was no occasion for removal. In our part of the country, these other spleens which became enlarged as the result of chronic malaria, were harmless unless the pedicle was twisted. I have since removed a number of spleens and have come to the conclusion that when a spleen is removed in a case in which there is not a splenic leukemia of advanced character, the operation is quite as safe as is the one for removal of the thyroid or of the uterus or any other simple operation, provided that the same systematic plan is followed. There should be no severe traction on the pedicle of the spleen or great manipulation of the veins, because they are exceedingly friable. After severing the pedicle below, care should be taken to protect the smaller veins which often enter the spleen from above. If one is careless, one will find that some of the large veins which pass through the accessory ligament are exceedingly troublesome, but when these things are looked after in patients not suffering from splenic leukemia, the operation is a safe one. I have had one of these patients go through a severe pneumonia afterward under the care of one of our best internists, who found no difference whatever in the course of the disease. If the leucocytosis is higher than 50,000, then one can count on a fatal hemorrhage after the splenectomy. My experience in fifteen or twenty cases is not sufficient to be of any value except as a guide. If there is leucocytosis accompanied by a rise in temperature, then, of course, there is no occasion for the operation, because one would no more operate in this chronic condition while there is an acute infectious condition present than for any other chronic surgical condition. Therefore, if the leucocytosis is the result of the leukemia, one must be guarded in the operation, and not fear hemorrhage from the large vessels at all, but hemorrhage from the small adhesions. The blood will continue to ooze out. Gauze may be sutured over the surface, and the blood will ooze out of the stitch holes. It will ooze out, no matter what one does in these cases of advanced splenic leukemia.

THE PROLIFERATING FORMS OF CUTANEOUS SYPHILIDS *

A. RAVOGLI, M.D.
CINCINNATI

When through the works of Schaudinn and Hoffman we have learned to know the germ of syphilis, and when we have found that to be a living spirillum belonging to the class of the protozoa, we can be satisfied that we have made a forward step in the intimate knowledge of syphilis and also of other diseases produced by kindred organisms. In a short article on elephantiasis[1] which was presented to the American Dermatological Association, I remarked that this condition of the penis and scrotum was often due to syphilis, and that all cases of elephantiasis are started by the presence of infectious germs or of parasites, which cause continuous irritations in the tissues and a stasis in the progress of the lymph. Indeed, after the observation of Blaschko[2], who found the presence of spirochetes in the syphilitic tissues, in the tunics of the blood vessels, in their divisions, in the surrounding infiltration, in the coagulated lymph, in the lymph spaces and in the lymph vessels, it is not difficult to infer that the presence of the germ is the cause of the proliferation of the tissues.

Cornil and Ranvier[3] had already outlined the idea that a prolonged irritation of the derma caused an hypertrophic dermatitis with formation of papillary productions of the skin. This tendency to formation of fibrous tissues in the skin is very marked in the syphilitic inflammations of the skin, which are considered as the exponent type of the formative dermatitis. In the old syphilitic papules the lesion consists only in the enlargement of the papillæ.

In all infectious inflammatory processes of the skin Unna[4] finds that through the formation of thick epithelium the papillæ are irritated and proliferate. They are deformed, elongated and often subject to secondary decussation. In some cases of proliferating syphilitic lesions the same condition is found. In consequence of the irritating secretion of the mucous patches, of the presence of excretions, of neglect of cleanliness, the epithelium is macerated and causes irritation of the underlying papillæ, which start to proliferate. This condition is found in the secondary period when hypertrophic mucous patches are proliferating (Fig. 1).

In tertiary forms the proliferating papillæ have their origin from ulcerative forms and the epithelium has no relation to the irritation. This vegetating condition of the papillæ is often associated with and has close relation to elephantiasis. Indeed, the tendency of the syphilitic process to produce lymphatic stasis is well established. The edema indurativum of Sigmund, the *œdème scléreux* of Fournier, the edema induratum of Lang, are the result of a firm edema-like infiltration in the skin and subcutaneous tissue. Tschlenow,[5] following the ideas of Pick, considered elephantiasis of the vulva as a result of syphilis. He referred to a woman with enormous elephantiasis of the labia, in whom the skin was covered with wart-like efflorescences extending to the vagina and the affection had begun with papillary proliferations.

Balzer and Deshayes[6] found in a patient who had been syphilitic for thirty-three years, suffering with tuberous vegetating syphilid of the thigh for ten years, an enormous edema of the penis and of the scrotum. When these luetic lesions healed up hypertrophic scars were formed. In the same man the tongue was covered with hypertrophic papillary growths. On those papillary growths specific treatment had very little influence.

From my experience I can state that vegetating papillomata in syphilis can occasionally develop in all periods of the disease. They may be found on an initial lesion, and also on other syphilitic products of the skin and mucous membranes. These vegetations, although harmless, are troublesome on account of their obstinacy and their tendency to recur. In my case, shown in Figure 1, the vegetating papillary growths had their

* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Ravogli: Elephantiasis of Penis and Scrotum Due to Syphilis, Jour. Cutan. Dis., February, 1907, p. 61.

2. Blaschko, A.: Ueber Spirochætæ Befunde in syphilitisch erkrankten Gewebe, Berl. Klin., 1906, No. 13.

3. Cornil and Ranvier: Manuel d'histologie pathologique, Paris, 1876, p. 1204.

4. Unna, P. G.: Die Histopathologie der Hautkrankheiten, Berlin, 1894, p. 205.

5. Tschlenow, M.: Syphilis und Elephantiasis der Vulva, Med. Oboz., 1902, No. 11; ref. Arch. f. Derm. u. Syph., lxvi, 299.

6. Balzer and Deshayes: Syphilides tertiaires avec éléphantiasis des organes génitaux et glossite hypertrophique, Ann. de dermat. et syph., 1906, p. 196; ref. Arch. f. Dermat. u. Syph., lxxxvi, 422.

base on an eruption of mucous patches thickly crowded on the labia majora and minora, extending to the perianal region downward and to the clitoris, pubis and fossa crurogenitalis upward in the form of a triangle. Many of these formations were large and pedunculated. Infection in this woman dated back eighteen months.

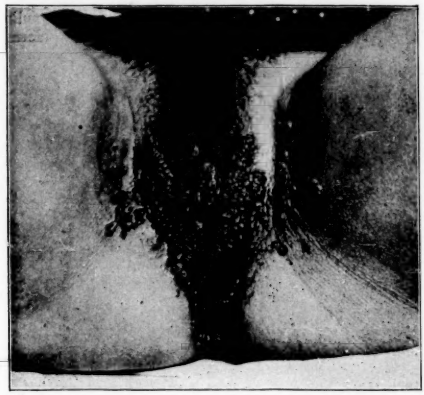


Fig. 1.—Vegetating papillary growths on the labia majora and minora.

Vegetating forms of syphilis of this kind have their origin in papules, which occur on the skin and on the mucous membranes. In a young woman infected for five years I found two vegetations on the dorsum linguæ.

Fig. 2.—Papillomatous growths and elephantiasis of the labia.

They were of the size of a grain of corn, oval, hard, thick, slightly reddish, of a shiny appearance. I had them scraped off, but after healing they are still somewhat perceptible. Allen[7] referred to cases of vegetations under the surface of the tongue, lips and soft palate in syphilitics. The surface of the elevated plaques spreads irregularly from unequal lengths of the papillæ and forms papillomatous groups of cauliflower appearance.

In late syphilis papillomatous growths come together with a thickening of the tissues in an elephantiasis form. A mulatto woman aged 30 (Fig. 2), infected by her husband at their marriage twelve years ago, previously weak and anemic, is greatly run down in her general

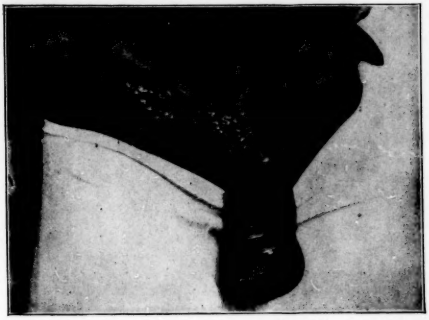


Fig. 3.—Elephantiasis of the penis.

system, showing plainly the effects of the diathesis. No syphilitic symptoms are perceptible, except in her genitals. The labia are greatly enlarged, hard and thick. This was much plainer on the right one, which has reached the size of an orange covered with thick and hard papillary vegetations. Some vegetations have invaded the ostium vaginæ, which is nearly occluded, and have extended to the perineum. No pain is connected with this condition beyond the discomfort due to their presence. The papillary growths are hard, elastic, and moistened with secretion of nauseous odor. Their color is rose-red, and in many points they are whiter than the normal skin.

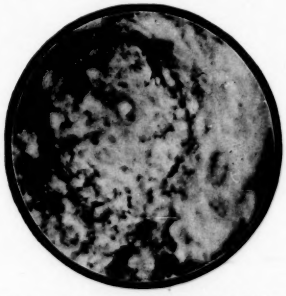


Fig. 4.—Hypertrophic papillæ transversely cut, with spirochetes.

Figure 3 shows a colored man, aged 28, who was infected for six years. He had elephantiasis of the penis. The skin and the connective tissues of the organ were thickened, hard and enormously swollen. The glans penis was converted into a mass of vegetations which protruded from a swollen and edematous prepuce.

7. Allen, Charles W.: Syphilis of the Mucous Membranes, A System of Genito-Urinary Diseases (by P. A. Morrow), ii, 230

An ulceration from the radix of the penis extended to the whole right inguinal region. The ulcerated surface was covered with thick hard papillary proliferations of the size of a split pea or larger. They bled easily and overlapped the normal skin for over half an inch. The penis was amputated, the vegetations were scraped off and the surface burned with thermocautery. The wound of the penis healed up promptly, but the granulations came back in the same form.

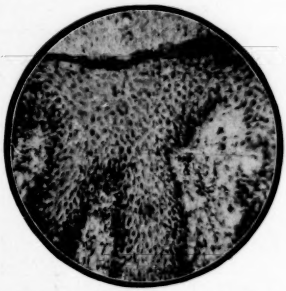


Fig. 5.—Epidermic layer of syphilitic proliferations.

Fig. 6.—Epidermic cells disposed around the papillæ.

Fig. 7.—Hypertrophic papillæ in a mass of epidermic layer.

I have had occasion to see some forms of proliferating syphilis around the anus forming some obstacle to defecation in the form of a large cauliflower mass.

From each one of the cases I took a small part of the vegetations for biopsy. One little piece was treated with Levaditi stain for spirochetes. In the vegetating papules of secondary nature the spirochetes were found, as can be seen from the micrographs. In Figure 4 they are disposed around the enlarged papillæ in the form of small spirilla. In the interpapillary tissues the spirochetes are disposed longitudinally following the disposition of the connective fibers. In the vegetations of tertiary period in Cases 2 and 3 I was not able to see the presence of spirochetes.

The specimens treated with ordinary stains, such as hematoxylin and eosin or picric acid and hematoxylin, show an enormous hypertrophy of the epidermis. The stratum corneum is missing and is replaced by a mass of juicy epithelial cells with small nuclei, which do not take the stain. In Figure 5 gradually the epidermic cells begin to show that they are much larger, of triangular or cubical shape, with one or two nuclei well stained by hematoxylin, and between them are found abundant mitoses. These cells keep getting still larger and stronger and make an enormous mass of epithelial layer of the granular portion. When they reach the papillæ they appear fusiform, elongated and forming a columnar arrangement (Fig. 6.)

The papillæ are enlarged, elongated and protruding like sprouts in every direction in this mass of epidermic cells. In Figure 7 they are made up with connective tissue fibers, and enlarged connective tissue corpuscles; in some places a strong layer of plasma cells can be seen. The tissue forming the papillæ are infiltrated with white small cells. Figure 8 shows small inflammatory cells in enlarged connective tissues and an artery and a vein enlarged and filled with blood.

The papillary layer is greatly enlarged (Fig. 9) and infiltrated. The connective tissue fibers are hypertrophic and contain large blood vessels. It is very difficult to differentiate these specimens from those of tuberculosis verrucosa cutis.

Fig. 8.—Enlarged papillæ with enlarged vein and artery.

Fig. 9.—Papillary layer, infiltrated with hypertrophic papillæ.

Fig. 10—Proliferating syphilid; plasma cells; hypertrophy of collagenous tissues; no elastic fibers.

The same condition is found in the deep layers of the derma; only the connective tissue fibers are much enlarged and hypertrophic. Specimens stained with orcein and then treated with hydrochloric acid have failed to show elastic fibers. It seems that the infiltrating process, pressing the elastic fibers, causes their disappearance. The same loss of elastic fibers I have found in keloid, in the elephantiasic tissues, in tuberculous tissues—in short, in all tissues in which thick infil-

trating process has taken place. It seems that the delicate elastic fibers are soon damaged and disappear, leaving the collagenous tissues free to proliferate. (Fig. 10).

In all processes in which a constant irritation is maintained in the tissues of the papillæ proliferate and papillomatous vegetations are formed. The same tendency to proliferations is found in tuberculosis verrucosa, in several kinds of cancer, in blastomycotic lesions, in any process in which parasites, having taken abode in the tissues, mechanically with their presence and chemically with their toxins maintain a constant irritation. The presence of the treponema in the connective tissues of the derma maintains a constant irritation with a tendency to abundant exudation in the form of indurated edema. The collagenous tissues grow and form papillary growths. Indeed, as Virchow stated, every deviation of the nutrition of the tissues is the direct result of the exudation which enters between them. The tissues have the property of nutrition, and every cell has its own life, *vita propria*. This property of the cells of maintaining their own life was studied in the epithelium by Hertwig and Phol, and especially Legrand,[8] who found that infiltration cells in the imbibed tissues can not remain for a long time, but either they must undergo degeneration or they must divide and proliferate. This condition is well perceived in case of poisonous elements in the skin. In fact, in tuberculosis cutis there is seen a central area, the nearest to the poison, where the cells are degenerated, an intermediary one, where the cells are proliferating, and a peripheral one, more remote from the toxic influence, where normal cells are still found. In a general way it may be said that the deleterious action of the parasites on the tissues is produced by their poisonous secretions and also by their mechanical presence. In syphilis the treponema is not only a poison but a virus, which is reproduced in the organism, and keeps extending its deleterious action. It spreads in the system, remains latent for a while, and then finds new locations, where it produces its chronic lesions. The tissues affected with the treponema are infiltrated, and the infiltration undergoes necrosis and ulceration results, while the other cells are proliferating and form masses of papillary granulations. These connective elements are always produced by the existing tissues. The lack of elastic fibers is remarkable in the specimens, as is the immense growths of collagenous elements and of plasma cells. It seems that the elongation and enlargement of the vegetating papillæ represents a process of acanthosis. I have found the same deficiency of elastic fibers in the keloidal productions, and in this same process it seems that the lack of elastic fibers leaves the collagenous substance free to grow and to increase and form vegetations. The growth of epithelium occurring in these vegetating forms of syphilids takes the appearance of certain cancers, especially of the ulcus rodens. The epithelium is not capable of cornification and as a consequence undergoes a process of colliquation and a cicatrix can not be formed. Indeed in certain cases it is difficult to make the differential diagnosis of the proliferating syphilid from a papillomatous carcinoma. To the same condition can be referred the not infrequent occurrence of the carcinoma on syphilitic proliferating ulcers.

8. Legrand, L.: Cancer et milieu intérieur, Semaine méd., 1909, xx, ii.

In fact the proliferating masses of the tertiary syphilitic ulcers show no special characteristics, and they have common characters with the proliferations of other morbid processes. The imbibition of the tissues from the lymph stasis, the hypernutrition of the connective tissue corpuscles, cause their division and their proliferation. The elastic fibers which maintain the connective tissues in their limits are gradually lost, and the collagenous elements are left free to proliferate without any restraint.

That the spirochete is the starting element of the irritation there is no doubt, as is clearly shown in the secondary vegetating patches. In the tertiary vegetating masses spirochetes were not found. This, however, does not diminish the value of the assertion that the presence of micro-organisms is the origin of proliferating granulations. It is possible that at this period the spirochete cannot be stained, or very likely it is concealed in the deep tissues, causing stasis of the lymph, ulceration, and the tissues so irritated start to granulate, and continue to granulate, but are unable to obtain a good solid epidermic layer to stop their growth.

In reference to treatment, it is not difficult to bring the proliferating patches of the secondary period to recovery. Internal constitutional treatment with external application of calomel, or bathing with solutions of 1 to 500 of bichlorid of mercury, are capable of producing involution of the vegetating plaques. In some cases it is necessary to use strong caustics, as in the case shown in Figure 1 it was necessary to scrape the whole vegetating surface with the sharp curette.

In the case shown in Figure 2 a reconstituent diet with tonics, decoction of Zittmann,[9] alternating with a saturated solution of iodid of potassium taken internally, has given satisfactory results. Local bathing with bichlorid solution 1 to 1,000 and a local application of emplastrum hydrargyri, have produced the involution of the granulations and a great diminution of the elephantiasic condition of the labium.

In the case represented by Figure 3 the penis was amputated and the proliferating surface was scraped off and burned with thermocautery. In spite of this treatment the proliferations recurred with annoying persistence. The applications of mercurial plasters irritated and did not produce any benefit. The application of resorcin in the form of a salve one drachm to one ounce of petroleum did some good. The cicatrix was obtained only after a few exposures to the *x*-ray. This produced a shrinking of the granulations, and the epithelium begun to be formed. The resulting cicatrix was somewhat bulky and of a keloidal appearance.

5 Garfield Place.

ABSTRACT OF DISCUSSION

DR. GEORGE PERNET, London, Eng.: I have long been of the opinion that these secondary vegetative proliferating conditions which are seen in syphilitic lesions, in tuberculosis, yaws and a variety of other conditions, are really due to staphylococcus infection. I have looked on them as epiphenomena, and really due to irritation within the derma. To

9. As this decoction is not official in the U. S. Pharmacopeia, and may not be familiar, the formula is here given as it appears in the National Standard Dispensatory:

Decoctum Zittmanni fortius: Take of sarsaparilla root, cut, 100 parts; digest in water 2,600 parts for 24 hours, and add, enclosed in a linen bag, powdered sugar and alum each 6 parts, calomel 4 parts, and cinnabar 1 part; then heat in a covered vessel placed in a steam-bath for 3 hours, stirring frequently, and near the end of the boiling add anise and fennel, bruised, each 4 parts, senna, cut, 24 parts and licorice root, cut, 12 parts. Express, strain, set aside for some time, and decant to obtain 2,500 parts of clear liquid; 2,500 gm. of this are to be divided into 8 parts.

accept this theory, one might have to reconstruct one's views, but that is the conclusion I have arrived at. In the treatment of these lesions, one of the best things I know of is the peroxid of hydrogen.

DR. A. RAVOGLI, Cincinnati: There is no question in my mind that the constant irritation is the cause of the proliferation of the connective tissues of the derma. It is possible, as Dr. Pernet has suggested, that the staphylococcus and the irritation from the different secretions will produce proliferations, but in the particular types that I have presented I am convinced that they are the result of the presence of the spirochetes and the mechanical irritation of the tissues in long-standing syphilitic processes. While any antiseptic, like peroxid of hydrogen, is of some value in the treatment of these lesions, their cure requires a remedy of more decided character, such as the *x*-ray or curettement, and also the actual cautery.

ANIMAL EXPERIMENTATION AND TUBERCULOSIS *

E. L. TRUDEAU, M.D.
SARANAC LAKE, N. Y.

ETIOLOGY

Everything that we know to-day of the etiology of tuberculosis, everything that has a direct bearing on the prevention and control of the disease, we owe to animal experimentation. Before the infectious nature of the tubercle became established by animal experimentation no advance was made in the knowledge of tuberculosis in any direction except in that of pathologic anatomy. From Sylvius,[1] who in 1695 first described tubercles and drew attention to their relation to pulmonary phthisis, up to the time of Klencke[2] in 1843, and even of Villemin[3] in 1865, who were the first to demonstrate by inoculation experiments on animals the infectious nature of the tubercle—that is, in a period of 170 years—no advance was made in the etiology of the disease, and this long period was wholly occupied by studies of the pathologic anatomy of tubercle, scrofula, caseation, pulmonary tuberculosis, and discussions of their relation to each other and their classification. Knowledge of the exciting causes of these pathologic processes remained theoretical; they were principally attributed to hereditary tendencies, perverted humors, and various types of inflammation.

Klencke,[2] in 1843, was the first to demonstrate the infectious nature of "tubercle" by inoculating rabbits in the vein of the neck with "tubercle cells" and producing general miliary tuberculosis in these animals. Klencke, however, hardly realized the importance of his own discovery, and little attention was paid to his work until, in 1865, Villemin,[3] by extensive and carefully controlled inoculation experiments on rabbits, confirmed Klencke's views and demonstrated beyond doubt the infectiousness of tubercle by reinoculation from animal to animal. He also obtained evidence of specificity, as control inoculations with other morbid material, such as cancer, pus, bits of pneumonic lung, etc., remained negative. He was as successful with material derived from the *Perlsucht* disease of cattle as with human tubercle, and thus pointed out the identity of the tuberculous process in man and animals. From his experiments he reached the conclusion that the tubercle itself had nothing specific in its histology, and that the disease must be due to a germ. Scrofula he considered sometimes tuberculous and at others non-tuberculous, as he could not always produce the disease in his experimental animals with scrofulous products.

Animal experiments were first used as a means of diagnosis by Marcet,[4] in 1867, who demonstrated the tuberculous nature of material from suspected cases of tuberculosis by producing with it generalized tuberculosis in guinea-pigs, and Edwin Klebs[5] demonstrated by animal inoculations in 1868 that the sputum of tuberculous patients contained an infective element which was capable of producing the disease in guinea-pigs. Damsche,[6] in 1882, used animal inoculations to make a diagnosis of urogenital tuberculosis.

While Klencke's and Villemin's results were accepted, the strife for many years continued over the interpretation of these results. Meanwhile, the positive proof as to the infectiousness of tuberculosis, obtained by subcutaneous inoculation in animals, was supplemented by evidence brought to light by inhalation and ingestion of tuberculous material. Schweninger,[7] in 1866, at first failed to infect dogs by inhalations of phthisical sputum, but later—1886—he succeeded; and Lippl,[8] in 1877, produced pulmonary tubercles in rabbits by insufflation of fluid sputum from man through a tracheal fistula. Tappeiner,[9] in a series of experiments which lasted from 1877 to 1888, demonstrated beyond doubt the infectiousness of phthisical sputum by inhalation experiments, his results being confirmed also by Bertheau[10] in 1880. Tappeiner, in 1880, had failed to infect rabbits by exposing them to the breath of coughing consumptives, and concluded that the infection must be conveyed, if at all, by dried sputum arising as dust, and not by the breath of the patient. The danger of this mode of infection received practical confirmation when his servant, whom he had warned to protect himself from inhaling the dust of the room in which the animals were confined, developed pulmonary tuberculosis and died of it. Giboux,[11] in 1882, however, succeeded in infecting rabbits by making consumptives cough in the boxes in which these animals were confined, and thus demonstrated, long before Flügge's classical experiments, the dangers of sprayed particles of sputum from phthisical patients.

Feeding experiments also added irrefutable evidence of the infectious nature of tuberculous material, as well as bringing many facts to support the hitherto unsuspected identity of the *Perlsucht* disease of cattle and human tubercle, by proving that both produced tuberculous disease in animals when taken into the stomach.

* This article is one of a series issued in pamphlet form by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Six of these pamphlets are now ready, taking up the questions of ethics, diagnosis, cancer, vaccination, etc. See advertising page 8, in this issue.

1. Sylvius: Opera Med. Traj. ad Rhenum., 1695.
2. Klencke: Untersuchungen und Erfahrung im Gebiete der Anatomie, Physiologie, Mikrologie und wissenschaftenlichen Medizin, Leipzig, 1843, i, Abschnitt 11; Mikropisch-pathologische Beobachtungen über die Natur des Kontagium, Paragraph 24. See also ii, Abschnitt 1, Par. 16.
3. Villemin, J. A.: Cause et nature de la tuberculose (first memoir), 1865. Etudes sur la tuberculose, 1868.
4. Marcet, William: The Inoculation of Animals as a Means of Diagnosis in Tuberculous Phthisis, Med.-chir. Tr., London, 1867, p. 437.
5. Klebs, E.: Ueber Entstehung der Tuberkulose und ihre Verbreitung im Körper, Virchows Arch. f. path. Anat., 1868, xliv.
6. Damsch: Die Impfbarkeit der Tuberkulose als diagnostisches Hülfsmittel bei Urogenitalerkrankungen, Deutsch. Arch. f. klin. Med., 1882, xxxi, 78 ff.
7. Schweninger, E.: Ueber künstlicher Erzeugung der Tuberkulose, Gesammelte Arbeiten von Dr. E. Schweninger, Berlin, 1886, i, 242.
8. Lippl: Amtl. Ber. d. 50. Versamml. deutsch. Naturforsch. u. Aerzte, 1877, p. 268.
9. Tappeiner: Amtl. Ber. d. 50. Versamml. deutsch. Naturforsch. u. Aerzte, 1877, p. 269. Wien. med. Presse, 1877, No. 43.
10. Bertheau, H.: Zur Lehre von der Inhalationstuberkulose, Deutsch. Arch. f. klin. Med., 1880, xxvi, 523.
11. Giboux: Inoculabilité de la tuberculose par la respiration des phthisiques, Compt. rend. 1882, xciv, 1391. Centralbl. f. d. med. Wissensch., 1882, p. 716.

Chauveau,[12] in 1868, infected calves by feeding them bovine tuberculous masses, and Edwin Klebs,[13] in the same year, infected guinea-pigs by feeding them with the sputum of consumptives, and in 1870 by the ingestion of bovine tuberculous material, which led him to the conclusion that the *Perlsucht* disease of cattle and human tuberculosis were caused by the same virus. Gerlach,[14] in 1870, demonstrated the infectiousness of milk from tuberculous cows by ingestion experiments on animals, and concluded that such milk was dangerous for human beings. Chauveau,[15] in 1873, fed asses, horses, cattle, and 160 calves, with various kinds of tuberculous material for six weeks, and not a single animal escaped infection.

HISTOLOGY

Animal experimentation has also greatly advanced our knowledge of the histology of tubercle, and during the period from 1862 to 1882 the animal experimentation method was applied to its study, and many experiments were made to prove and disprove the specificity of tubercle from the histologic standpoint. In 1873 Virchow[16] considered giant cells a criterion of tuberculous tissue, and as late as 1880 had reached the erroneous conclusion that *Perlsucht* of cattle and human tuberculosis were not identical, and that bovine lesions should be classed with lymphosarcoma. The findings of pathologic anatomy, however, were reversed by animal experimentation when Heidenhain,[17] in 1872, and Weiss,[18] Rustizky[19] and Zielanko,[20] in 1875 to 1878, proved by experiment on animals that giant cells could be produced experimentally with powdered glass, muscle, bone, etc., and Cohnheim and Salomonsen,[21] in 1877, from evidence based on eye inoculations in rabbits, added irrefutable evidence to the view that *Perlsucht* and human tuberculosis are inoculable, and are caused by the same virus; and established transmissibility to susceptible animals as the true and only reliable criterion of the tuberculous nature of any pathologic lesions. By this criterion the unity of scrofulous and tuberculous disease in man and animals, so long opposed by Virchow, was established.

Thus animal experimentation demonstrated beyond doubt the infectiousness of tuberculous matter in man and cattle, the danger of tuberculous sputum and milk, and the identity of scrofulous disease and tuberculosis in man, as well as tuberculous disease in animals, by subcutaneous injection, by inhalation, and by ingestion experiments on animals, and established the value of animal inoculations in the diagnosis of suspected tuberculous disease (a method which gives evidence from which there is no appeal) before the birth of bacteriology and before the tubercle bacillus was discovered by Koch.

Koch's[22] epoch-marking paper on the etiology of tuberculosis, announcing his discovery of the tubercle bacillus as the direct cause of all tuberculous and scrofulous diseases in man and animals, appeared in 1882. The unbroken chain of evidence forged by Koch in his logical demonstration of proof was obtained entirely by carefully controlled animal experiments, and gave the world a discovery of incalculable importance to the human race. Koch confirmed Cohnheim's views as to infectiveness being the best criterion of tuberculous disease, and by animal experiments established the value of microscopic search for the bacillus in diagnosis, and the identity of many lesions hitherto looked on as due to different diseases on account of the marked differences they presented both clinically and in the pathologic findings. He proved that all contained the same bacillus, which, when cultivated outside of the body, produced by inoculation in animals typical tuberculous lesions. Miliary tuberculosis, fibrous phthisis, caseous pneumonia, as well as scrofulous disease of glands, bones, and lupus of the skin, also *Perlsucht* in cattle, he showed to be due to the same cause—the tubercle bacillus.

PROPHYLAXIS, DIAGNOSIS AND THERAPY

In 1890 Koch[23] demonstrated by careful animal experiments the diagnostic value of tuberculin, pointed out its specific action on the course of the disease and on tuberculous lesions, and proposed the tuberculin test as a practical and efficient method of eradicating tuberculosis from infected herds, and tuberculin injections as a therapeutic measure in the treatment of the disease in man. The discovery of tuberculin was entirely based on animal experimentation, and the value of this agent in the control of cattle tuberculosis, as an aid to early diagnosis of tuberculosis in man, and as a therapeutic agent in the more chronic types of the disease, can hardly be overestimated.

Animal experimentation has been of incalculable value in the diagnosis of obscure cases, and in teaching where the infectious material lurks and how to formulate effective measures for the prevention of the disease. By animal experiments the infectiousness of various secretions from the tuberculous was established. Edwin Klebs,[5] in 1868, proved the infectiousness of sputum; Gerlach,[13] in 1870, the danger to man from the ingestion of the milk of tuberculous cows. Cornet's[24] exhaustive animal experiments demonstrated the danger of dried sputum, and indicated one of the principal modes of infection to be by inhalation of dried particles of expectorated material contained in dust from rooms inhabited by consumptives. Flugge,[25] by animal experiments, proved the danger of droplet infection in the immediate neighborhood of the consumptive by the spraying of small particles of saliva in sputum in violent coughing. Animal inoculations of the dust of infected rooms have also been used to test the efficiency of the measures to guard against room infection. This was done by Hance,[26] at the Adirondack Cottage Sanitarium in 1895. The entire system of hygienic care of the sputum and other discharges has been built up on the results of animal inoculations.

12. Chauveau, A.: De la transmission des maladies virulentes par l'ingestion des principes virulents dans les voies digestives, Gaz. de Paris, xlvii, 1868.
13. Klebs, E.: Beiträge zur Geschichte der Tuberkulose, Virchows Arch. f. path. Anat., 1868, xliv, 278. Zur Geschichte der Tuberkulose, Virchows Arch. f. path. Anat., 1870, xlix, 291.
14. Gerlach, A. C.: Ueber die Impfbarkeit der Tuberkulose und der Perlsucht bei Tieren, sowie über die Uebertragbarkeit der letzteren durch Fütterung, Virchows Arch. f. path. Anat., 1870, li, 297.
15. Chauveau, M.: Rec. de méd. vét., 1872, 1873. Cited by Johne, A.: Die Geschichte der Tuberkulose, Leipsic, 1883, p. 30.
16. Virchow, R.: Ueber die Perlsucht der Haustiere und deren Uebertragung durch die Nährung, Berl. klin. Wchnschr., 1880, Nos. 14 and 15. Die Uebertragbarkeit der Perlsucht durch die Nährung, Virchows Arch. f. path. Anat., 1880, lxxxii, 550.
17. Heidenhain: Ueber Verfettung fremder Körper, etc., Inaug. Diss., Breslau, 1872.
18. Weiss: Ueber der Bildung und Bedeutung der Riesenzellen, etc., Virchows Arch. f. path. Anat., lxviii, 67.
19. Rustizky, J. von: Untersuchungen über Knochenresorption und Riesenzellen, Virchows Arch. f. path. Anat., lix, 218.
20. Zielanko: Arch. f. mikr. Anat., cxi, No. 3, cited by Ziegler: Die Herkunft der Tuberkelelemente, 1875.
21. Cohnheim and Salomonsen: Sitzungsber. d. schles. Gesellsch. f. vaterl. Kultur, July 13, 1877.
22. Koch, R.: Die Aetiologie die Tuberkulose, Berl. klin. Wchnschr., 1882, No. 15.
23. Koch, R.: Deutsch. med. Wchnschr., Nov. 13, 1890, No. 46a; Oct. 22, 1891, No. 43.
24. Cornet, G.: Tuberkulose, Leipsic, 1890.
25. Flugge, G.: Ztschr. f. Hyg. u. Infektionskr., 1899, xxx, No. 1.
26. Hance, I. H.: Med. Rec., Dec. 28, 1895; Feb. 13, 1897.

Not only have animal experiments been used in demonstrating where the infectious material lurks, but, since the discovery of the tubercle bacillus, the same method has taught us the various channels by which the bacillus gains access to his host, and all that we already know of the mechanism of infection and the defensive resources of the living organism. To Cornet's[24] exhaustive animal experiments we owe much of our knowledge as to the sources of infection and the channels whereby the tubercle bacillus gains access to the living organism. Through his work on the channels of infection, he found that in most cases the pathologic evidence should furnish a clue to the site of invasion, but that tubercle bacilli are able to penetrate the macroscopically uninjured mucous membrane, and in rare cases even the skin, without leaving locally any evidence of their passage. This has been confirmed by many animal experiments in the recent exhaustive comparative studies of infection by inhalation and ingestion which have followed the world-wide discussion of the relative infectiousness of bovine and human tuberculosis.

Cornet[27] concluded that inhalation of infectious dust was the most frequent cause of infection, and that tuberculous infection progressed much more generally by the lymph stream than by the blood stream, and was rather a lymphogenous than a hematogenous infection.

Animal experimentation has taught us all we know of the complex, defensive mechanism by which the living organism resists the progress of bacterial infection and ultimately often heals the lesion and attains acquired immunity. Inspired by Pasteur's achievements in the field of acquired immunity, Daremberg,[28] Grancher, Martin,[29] Ledoux-Lebard,[30] Richet and Hericourt,[31] and others of the French school attempted (with, however, but indifferent success) the production of artificial immunization against tuberculosis in animals.

The treatment of tuberculosis by tuberculin, as originated by Koch[23] in 1890, was the first adaptation of the knowledge acquired by him in artificial immunization of animals to the treatment of tuberculosis in man. In America, Dixon,[32] in 1889, made experiments in this direction with attenuated bacilli; Trudeau,[33] in 1892, produced a marked degree of artificial immunity in rabbits with avian tubercule bacilli; and in 1893 de Schweinitz[34] obtained similar results in guinea-pigs by the use of bacilli of human origin attenuated by prolonged cultivation. In 1895 Theobald Smith,[35] by animal experiments, demonstrated the differences of virulence between human and bovine bacilli, and thus opened the way for further studies in cattle immunization. Pearson and Gilliland,[36] by animal experiments, were among the first in America to attain a high degree of immunity in cattle by the use of the human type of bacillus. In Europe, during the past decade, von Behring,[37] Koch,[38] Calmette[39] and their associates, by extensive animal experiments, demonstrated the possibility of producing immunity by preventive inoculations in cattle of living human cultures, and advanced our knowledge of this complex problem of such overwhelming importance in man's struggle against tuberculosis to a point which may lead to its ultimate conquest.

Far-reaching in the saving of human life as the new knowledge of tuberculosis is, it is difficult to define accurately what it has already accomplished, because it has so recently been acquired and has, owing to the vastness and complexity of the problem, been as yet so imperfectly applied to both prevention and treatment, and because the results offered by the falling death-rate are in this disease influenced by so many factors other than those which bear directly on preventive measures aimed solely at the specific infecting agent, the tubercle bacillus.

The death-rate from pulmonary tuberculosis has fallen steadily in most countries during the last forty years, notably in England, where a decrease of 50 per cent. has taken place in that time.[40] In many countries it has fallen only slightly faster since the discovery of the tubercle bacillus and the more or less complete adoption of preventive measures, while in others it has fallen much more rapidly since 1882, as in New York City, where there has been during the past twenty years a reduction in the death-rate from pulmonary tuberculosis of nearly 40 per cent.,[41] and notably in Prussia,[42] where the death-rate was 50 per cent. less in 1903 than in 1885. In some places, as in Boston, the death-rate during the twenty years preceding the discovery of the bacillus and the gradual adoption of preventive measures had shown no inclination to fall, while during the twenty years following this discovery it has fallen markedly and continuously. While it is true that the decrease in mortality began before any effective measures aimed directly at the infecting agent had been in force, the steady and continuous decrease in the death-rate makes it fair to assume that the brilliant results obtained have been due, in part at least, to the measures which aim directly at the limitation of the infection and the protection of the well from tuberculous dust.

In Boston[43] the death-rate, which in 1862 was 42 per 10,000 living, after slight variations, in 1882 was still about the same; but from 1882 to 1902 it fell from 42 to 21 per 10,000, so that during the past twenty-one years the diminution in the death-rate from tuberculous disease in Boston has been approximately 55 per cent., this decrease representing, in actual saving, 14,412 lives.

The demonstrable results in preventive measures aimed solely at the specific infecting agent would naturally be most noticed first in children, and the results in New York City, where such measures have been most strictly enforced, bring evidence in support of the influence of such measures on the death-rate of tuberculous meningitis and pulmonary tuberculosis in children. Dr. Biggs points out that "during the ten-year period ending 1902 there has been a decrease of more than 40 per cent. in the death-rate from pulmonary tuberculosis and tuberculous meningitis in children under 15 years of age in New York City, and that during a period of twenty years the decrease has considerably exceeded 50 per cent."[44]

27. Cornet: Tuberculosis, in Nothnagel's Practice, pp. 104-106.
28. Daremberg, G.: Compt. rend. hebd. Soc. de biol., Dec. 30, 1893, v.
29. Grancher et Martin: Congrès pour l étude de la Tuberculose, 1891, 1896.
30. Ledoux-Lebard: Arch. de. méd. expér., 1898, No. 10.
31. Richet et Hericourt: Etudes sur la tuberculose, 1891, iii.
32. Dixon, S. G.: Med. News, 1889, lv; Med. and Surg. Reporter, 1890, lxiii, 281.
33. Trudeau, E. L.: Med. News, Sept. 3, 1892.
34. De Schweinitz, E. A.: New York Med. Jour., March 23, 1893.
35. Smith, Theobald: Tr. Assn. Am. Phys., 1896, p. 75; Jour. Exper. Med., 1898, iii, 451.
36. Pearson and Gilliland: Philadelphia Med. Jour., Nov. 29, 1902, p. 842.
37. Von Behring, E.: Beitr. z. exper. Therap., 1902, No. 5.
38. Koch, R.: Schutz, Neufeld and Miessner: Ztschr. f. Hyg. u. Infectionskr., 1905, li.
39. Calmette and Guérin: Compt. rend. de. l'Acad. d. Sc., 1906; Ann. de l'Inst. Pasteur, 1908, xxii, 689.
40. Osler's Modern Medicine, iii, 145.
41. Handbook on Prevention of Tuberculosis, Charity Organization Society, 1903, p. 165.
42. Kayserling: Osler's Modern Medicine, iii, 144.
43. Massachusetts State Committee International Congress, 1908, p. 119.
44. Biggs: Arch. Pediat., May, 1904.

The results obtained, however, must depend greatly on the thoroughness and efficiency of the preventive measures adopted, and this perhaps has been best demonstrated thus far in the observations of Dr. R. W. Philip,[45] of Edinburgh. Dr. Philip, believing that partial measures were of little avail, and that effectiveness in preventive measures aimed at the control of the disease depended greatly on cooperation and coordination of all the agencies which tend to control the infection, gradually instituted a more and more comprehensive program in Edinburgh, in which all these agencies cooperated.

A study of the death-rate during the last twenty years in that city bears witness to the fact that the death-rate varies with the thoroughness with which the preventive program is carried out. The death-rate in Edinburgh was 19.5 per 10,000 in 1887. During the next ten years, when partial and uncorrelated measures were in force, it fell from 19.5 to 17, a percentage fall of 12.82; but during the following ten years, when a more comprehensive plan was adopted, it fell from 17 to 11 per 10,000, a percentage fall of 42.1 as compared with 12.82 during the preceding ten years, when a less efficient and comprehensive plan of prevention was in force.

Judging by what has been added to our knowledge of tuberculosis by animal experimentation in the past, it seems not unreasonable to entertain the hope that its ultimate control will be accomplished by knowledge acquired through the same means, and will probably depend not only on a more thorough and comprehensive application of the knowledge already won, on which all preventive measures are based, but also on the discovery of some specific method of immunization or treatment—a goal that can be attained only through continued and painstaking studies on animals.

NECESSITY OF ANIMAL EXPERIMENTATION FOR FURTHER ADVANCE

From the foregoing review of the history of tuberculosis, it would seem evident that everything that has a direct bearing on the prevention of tuberculosis, everything that has changed mankind's attitude toward it from one of apathy and hopelessness, when the infectious agent which produces tuberculosis was unknown and the disease was thought to be inherited and always fatal, to the growing hope of its ultimate conquest—a hope which has resulted in the great antituberculosis crusade spreading over the world and culminating in the late International Tuberculosis Congress in Washington—we owe to animal experimentation. If it were not for the knowledge which science has won by animal experimentation in the field of this disease in the last twenty-five years, we should still be plunged in the apathy of ignorance and despair toward it which formerly prevailed, and tuberculosis would still be exacting its pitiless toll, unheeded and unhindered. Were it not for animal experimentation, the prospect of ultimately lifting this great burden of suffering and death from the human race would be as dark as it was before Klencke, in 1843, and Villemin, in 1865, succeeded in proving its infectious nature by experiments on animals with tuberculous material, and thus paved the way for Koch's discovery, in 1882, of the tubercle bacillus. The many researches which have flowed from the study of this germ have taught us already how to protect the healthy from infection and are daily teaching us how we may restore to health those already infected.

45. Philip, R. W.: Lecture before International Congress, 1908.

Thanks to animal experimentation, we know to-day that tuberculosis is not inherited; that it is communicable and, therefore, preventable; and that in its earlier stages it is curable.

Animal experimentation has taught us already much as to the different types of the tubercle bacillus, its virulence, the poisons it produces, and the manner in which it invades the living organism and destroys it. Slowly but steadily animal experimentation is teaching us the avenues of infection whereby the germ gains access to the organs of its living host; what are the defensive resources of the living organism; and the delicate mechanism whereby it combats the poison of the germ, tries to localize the bacilli, to limit their spread, and ultimately to destroy them. Animal experimentation is teaching us daily more of the complex and delicate processes which bring about acquired and artificial immunity, and through which the living organism wins the victory over the invading parasite. In the thorough knowledge and further study of these vital processes by animal experimentation lie the hope of applying to the protection of healthy human beings and the cure of disease, the knowledge won by science in studying Nature's methods of cure through long years of tireless and painstaking observations on animals.

During my lifetime all this knowledge, so practical in its bearing on the saving of countless human lives, has been won by animal experimentation. In my own personal experience, and as a result of my own observations, animal experimentation has led me to conclusions which have had a practical application in the treatment of my patients. In 1886 I was able to demonstrate on animals the influence of a favorable environment on the disease. Inoculated rabbits placed under the most unfavorable conditions attainable, so far as light, air, food, exercise and surroundings were concerned, succumbed to the inoculation, while those turned out in the open air on an island and supplied with abundant food recovered, with only traces of the disease at the site of inoculation. These observations on animals increased my confidence in the influence of a favorable environment on the course of tuberculosis in man, and confirmed my faith in the value of the sanitarium and open-air method, of which I was then trying to make a practical application in the establishment of the Adirondack Cottage Sanitarium. The open-air and sanitarium treatment has already saved and prolonged, and will continue to save and prolong, countless human lives.

In 1893 animal experimentation gave me indubitable evidence that the production of artificial immunity against tuberculosis, which has always been looked on as impossible, was not as unattainable as was generally believed, my vaccinated rabbits and guinea-pigs showing increased resistance not present in the untreated animals; and this strengthened my faith in the value of continuing the study and use of vaccines in the treatment of tuberculosis. Although the progress made in this direction has been slow, the results obtained by many experimenters in many lands have been in accord as to the hopefulness of this line of research; the goal has almost been reached already in the vaccination of cattle through the experiments of Koch, von Behring, Calmette, McFaydean, Heymans, Pearson, and others; and the application of vaccines to the treatment of various infections in the human subject is extending and giving encouraging results.

The conquest of tuberculosis in man and animals, like the conquest of smallpox, of diphtheria, of rabies, anthrax, and many other infections through the produc-

tion of some safe method of artificial immunity, seems, even to those hitherto skeptical, no longer visionary and unattainable. More knowledge of the infecting agent, its poisons, its methods of attack, the various defensive resources of the organism and methods that will call them into action, can be obtained only by animal experimentation.

Inoculation experimentations entail no greater suffering to the animal than the prick of a hypodermic needle, and then a painless death if it be killed, or death from tuberculosis if it be allowed to live. Those who cry out against animal experimentation trust us with the lives of their families when sick, but fear to trust us with rabbits and guinea-pigs. Surely the motives of physicians who are trying to learn how to prevent and cure disease, when their livelihood depends on the practice of medicine, can hardly be called into question. Those who in their blind ignorance or through false sentiment are trying by legislative interference to stop or to restrict animal experimentation do not, as we doctors do, have to witness daily the ravages of this terrible disease and live in the midst of the suffering and sorrow which follow in its wake; they seem to be content that all this should continue indefinitely so long as they are not brought into contact with it.

The new knowledge of tuberculosis, of such overwhelming importance to the human race, a knowledge which already gives assurance that generations to come will not die of this disease to the extent that former generations have died, has been won in recent years by animal experimentation. For all this is the death of any number of guinea-pigs and rabbits too high a price to pay? Are we to stop on the threshold of this newly acquired knowledge, and are the fruits of ultimate victory to be denied to humanity? These would seem questions that could safely be left to the common sense of unprejudiced men.

SEA-WATER TREATMENT, GIVEN BY SUBCUTANEOUS INJECTION

WITH THE RESULTS OBTAINED IN CHILDREN *

THEODORE LE BOUTILLIER, M.D.
Clinical Professor of Pediatrics, Woman's Medical College of Pennsylvania
PHILADELPHIA

Pursuing the theory of the marine origin of life which was elucidated by the French physiologist, Quinton, about ten years ago, a number of French investigators have been experimenting with sea-water. They have found that by dilution a solution is obtained which is isotonic with blood plasma and in which the leucocytes will continue their ameboid movements when kept at blood temperature. This solution contains mineral salts which are necessary to the growth and development of the cells of the body and were found to be in almost the same proportion as that existing in blood plasma.

The studies of a number of French investigators, among whom may be mentioned Quinton, Robert-Simon, Mace, Potocki, Hallion and Carrion, tend to show that by means of this "marine serum," as it is sometimes called, the upbuilding of the mineral constituents of the body cells is accomplished; the action being strictly tonic, apparently not bactericidal, but increasing the cellular resistance to infection. They state that elimination of waste products through the kidneys, intestines, skin and lungs is increased; that edema is never produced, and that there is no retention of chlorids; while the action of the kidneys is greater; further, that sea-water is superior to any other saline solutions, as shown by the fact that sea-water is more rapid in its action and induces a greater gain in weight. They also state that where other solutions failed in effect, good results followed injections of sea-water. Unfortunately, I have been unable to verify this statement, but I am at the present time experimenting with normal-saline-solution tablets containing sodium chlorid, gr. 3¾; calcium chlorid, gr. 1, and potassium chlorid, gr. ⅜.

The subcutaneous injection of sea-water solution is unaccompanied by pain or other disturbance, so frequently seen in the use of serums. There may be a slight elevation of temperature following the first or second injection, with pain and discomfort at the seat of injection, owing to the distention of the tissues by the fluid.

The sea-water has been obtained from the Atlantic Ocean, well out at sea and from a sufficient depth to insure against contamination by surface bacteria. The solution has been made according to the method of Robert-Simon, diluting 83 parts of sea-water with 190 parts of pure spring-water. This mixture is then filtered cold through a germ-proof Berkefeld filter, the filtrate being put up in sterile bottles. As a number of French chemical firms are putting up this product in sealed glass half-liter tubes, the possibility of contamination by the air is lessened, but so far I have had no bad effects from our modification of this method. When ready for injection the solution is poured into a sterile Horwitz irrigating-bottle. When the solution flows too slowly I increase the pressure by using a rubber bulb attached to the neck of the flask; to the outlet is attached a piece of sterile rubber tubing, on the end of which is a small iridium-tipped platinum needle, which is sterilized by flaming before each injection.

The usual site of injection is just below the angle of the scapula or in the gluteal region. I think the former preferable, as it is not so likely to come in contact with excreta. Subsequent injections are given in the same region, since, with few exceptions, after the first distention of the tissues, there will be little or no discomfort.

The length of time employed in giving and injection is usually from three to five minutes, except where large quantities are used, when it may take fifteen to twenty minutes. Absorption should take place in from three to four hours, and at times even more rapidly.

The amount injected in infants and children varies from 10 to 60 c.c., the usual dose being from 15 to 30 c.c., depending on the age of the patient and the urgency of the case. Injections are given from three times a week to every day for a short period of time, the amount being increased until the desired effect is produced.

The duration of treatment depends entirely on the case, varying from two to three weeks to four or six months. In some infants the condition has improved so much after four or six injections that the patient was discharged, while in other cases, treatment has been continued four or five months.

This treatment seems to be of most value in cases in which nutrition is at fault; in other words, cases of inanition, malnutrition, marasmus and chronic indigestion. During the past six months a study has been made of this class of cases and with few exceptions the results have been exceedingly gratifying. In two fatal

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

cases the condition of the infants at the time of starting treatment was such that I had no hope of their recovery. One of these patients was in a profoundly toxic state following an acute infectious gastroenteritis, while the second patient was in the last stages of inanition or starvation.

Effects on nutrition especially noted in this series of 30 cases are as follows: There is a slight increase in amount of urine voided following the first few injections; in many instances improvement in the condition of the stools, without any change having been made in the food. This fact is significant because some of these patients were breast-fed, while others had been under observation for varying periods of time before treatment was commenced. There is improvement in the appetite and in the amount of food taken within the first two or three weeks; this is noticeable in older children suffering from malnutrition or chronic indigestion. In infants in whom colic has been one of the distressing symptoms, I have found this to be relieved invariably within the first two weeks. The skin in many cases at the commencement of treatment was found to be harsh, dry and more or less scaly. This condition cleared up rapidly, leaving a perfectly normal healthy skin by the close of treatment; and this is true both of infants and older children. The infants who were either losing weight or stationary would, as a rule, begin to gain after the first few treatments, in some instances gaining as much as one ounce daily while under treatment. In one or two cases there was an initial loss following the first two or three treatments, but this was rapidly made up. Many patients who were restless and wakeful at night improved markedly.

One of the most interesting cases was that of an infant with marasmus, whose mother is actively tuberculous. This infant in ninety days gained one pound and nine ounces. He was treated through the courtesy of Dr. Tallant in the Maternity Hospital, while there being given much fresh air and proper diet. For a number of weeks his weight remained almost stationary, but there was marked gain in muscular strength and in his ability to digest food. He became bright and alert, eager for his bottle and normally sleepy, instead of markedly restless and sleepless at night. After he was taken home his treatments were continued with great regularity, and within two weeks he began to gain in weight so that during the six weeks of the remainder of his treatment his weight increased three pounds. The same statement can be made about another marasmic infant who also was treated at the hospital during the same period of time. She gained two pounds and thirteen ounces in eighty-eight days. Following her return to the dispensary, treatment was continued for only fifteen days, in which time she gained six ounces. When seen two months later she had gained two pounds and one ounce in weight and is now a perfectly normal infant of twenty-one months.

One case of marasmus in an infant of nine weeks with a history of having been bottle-fed since birth, with poor hygiene. The infant was the youngest of ten children, fretful, crying much of the time, with constipation so marked that castor oil was given every day, and was said to have lost weight since birth. When first seen the child's weight was six pounds and thirteen ounces. No change was made in the diet of the infant, except that the bottle was to be given at regular intervals and the sea-water injections of 15 c.c. were started. Castor oil was stopped and for two weeks the infant did well, having a stool each day and was less cross and fretful. He gained fourteen ounces in weight. For one month he was not seen, and when he returned it was found that he had lost two ounces in that time and looked bad. Injections were started at once and his food changed to one more suited to his condition. During the succeeding month he has received twelve injections and has gained one pound and four ounces and is in a much more healthy condition.

This case shows conclusively the tonic action and the effect on nutrition which is produced by sea-water injections, for, during the month when the treatment was not given, the infant was perfectly stationary, not gaining in weight, strength, assimilation or digestion. Since that time the gain has been marked in these conditions, and at the present time the constipation is entirely relieved, the infant having two normal stools daily.

Any number of similar cases could be cited, but these three will give a general idea of the progress and recovery in cases of this type.

This treatment has been ridiculed because of the fact that overenthusiastic experimenters have found that it may do good in so many kinds of diseases that it has been heralded as a sort of panacea for every kind of trouble. This it is not, although there are many forms of nutritional disorders, either primary or secondary, in which some benefit will be derived from this measure; for instance, the malnutrition in tuberculous disease or following any of the infectious diseases will be much improved by this means. With this treatment it is not intended to relax care on the hygiene or dietetic side; in fact, one should, if anything, be more careful to adjust the diet to the needs of the patient and to pay attention to strict cleanliness, exercise and fresh air. The medicinal treatment also should not be neglected in cases in which drugs are indicated, sea-water injections being used for tonic and stimulative action on the cells of the body.

216 South Twentieth Street.

ABSTRACT OF DISCUSSION

DR. GEORGE SCOTT, New York: During the past winter Professor Simonet of Paris paid us a visit. He has been experimenting with this method of treating infants, and described a means of pasteurizing the sea water, laying particular stress on the fact that it should be secured at a considerable distance out at sea from below the surface and that small amounts to each patient should be given. I have demonstrated this method to students, and I have obtained very good results. This treatment is still in the experimental stage, however, and I think it must be used only as an adjuvant. One must not be carried away with the idea that it is a panacea. Dr. Simonet laid particular stress on its value in diarrhea and I think that it would be well to try it in this condition. I believe that sea water is a stimulant and a tonic to the nerve cells and in that way the system is enabled to ward off exhaustion. Dr. Simonet desires it to be remembered that this method is still in the experimental stage and he wants to know what we can do here with it in the treatment of summer diarrheas. There is only one thing against it, i. e., the subcutaneous injection. In a hospital that is always a good form of treatment, but in private practice it works up the mother to a considerable extent.

DR. T. LEBOUTILLIER, Philadelphia: I have been giving from 15 to 60 c.c. In some cases of severe anemia I have given as high as from 90 to 120 c.c. in children and as high as 240 c.c. in adults without any bad results whatever. As to the attendant pain, and the trouble with the parents, I thought I would try it on myself and see about how much pain there was in the injection and found that there was not more than is caused by any hypodermic injection; the discomfort lasted but one or two hours. I have found that an infant with the

bottle will make possibly one cry and then go on with the bottle until the needle is withdrawn. Older children make more trouble, but with a piece of chocolate or a cracker that is easily obviated. I had feared that this method would tend to cut down the attendance at the dispensary, but instead it has increased. The same thing is true in private practice. If a child is very ill and in urgent need of the treatment, the parents usually will readily submit. I saw one case of chorea, the patient was 9 years of age, in which the condition rapidly cleared up. In pneumonia when the patients were extremely cyanotic and in very bad condition this form of treatment has been beneficial and I have not lost a case in which it was used. In eczema some remarkable cures have been observed, but in other cases of eczema I have seen no result whatever.

EXPERIMENTAL SURGERY OF THE THORACIC AORTA BY THE METHOD OF MELTZER AND AUER *

ALEXIS CARREL, M.D.
NEW YORK

In operations on the thoracic aorta, it is necessary to use a method by which the pleural cavities can be opened without danger. I did not employ the classical apparatus, as they are too complicated and do not permit pulmonary ventilation, except by spontaneous respiratory movements of the subject. They would probably give unsatisfactory results in operations in which, the thorax being widely opened, the diaphragm and ribs can hardly act on the lungs. Therefore, I have used a simpler and a more efficient method, the method of Meltzer and Auer,[1] in which the respiratory exchanges take place even when the lungs are completely motionless.

The principle of this method was discovered a short time ago by Meltzer and Auer. They demonstrated that by ventilating the lungs with a continuous current of air, respiration takes place in an almost normal manner, even in the absence of respiratory movements. Meltzer and Auer introduced a small-sized catheter into the trachea of a dog which had been curarized. The catheter was inserted as far as the bifurcation of the bronchi. Then they passed through it a continuous current of air under low pressure. The air ventilated the lungs and escaped immediately to the exterior through the trachea. The thorax was opened and both the lungs were seen moderately distended and absolutely motionless. The animals could be kept in this condition for three or four hours and even longer. Some time ago Dr. Meltzer showed me his method and suggested its application to surgery. I immediately tried it in a few simple experiments, such as the resection of a pulmonary lobe, the extirpation of a segment of the middle part of the esophagus, followed by a circular suture, the dissection of the mediastinum by opening the two pleuræ and the pericardium, and resection of a small part of the superior vena cava and its replacement by a piece of a jugular vein. The animals recovered completely, with the exception of one that died of pleurisy a few days after the operation.

Then I began some studies on the surgery of the thoracic aorta. The object of the first series of experiments was chiefly to find a suitable technic for performing plastic operations on the large vessels of the thorax without interrupting the circulation.

The experiments were performed on dogs of small and medium size. The animals were anesthetized with ether. Then a rubber catheter was introduced into the trachea as far as the bifurcation of the bronchi. Before the thorax was opened the catheter was connected with the tube of a foot-bellows which gave a continuous current of air under low pressure. A manometer and a bottle of ether were fastened to the tube. When the pleuræ were opened, the lungs were allowed to collapse a little. Then they were kept moderately inflated by a continuous current of air. If the incision involved one side of the thorax only, the respiratory movements continued. But when the chest was opened by a semicircular anterior incision, the sternum cut and the thorax dislocated by strong retraction, the lungs remained unmoved. Nevertheless, the respiration continued in spite of the absence of respiratory movements and the gaseous exchanges of the blood remained almost normal.

Six animals were operated on. In three experiments, the upper part of the descending aorta was cut transversely. A few attempts were made to tube the vessel, on account of which the circulation was interrupted several times for a number of minutes. The ends of the aorta were then united by a circular suture, and during this time the circulation was interrupted from three to six and one-half minutes. The three animals recovered without incident.

In the fourth experiment the ascending part of the aorta was cut longitudinally about 3 cm. above the heart and sutured. This operation involved two interruptions of the circulation, each lasting about thirty seconds. The animal remained in good health.

The fifth experiment consisted in severing the ascending aorta in the middle and in interposing between its ends a segment of a large jugular vein, preserved in cold storage. The circulation was interrupted for seventeen minutes. The animal remained in excellent health, but the hind legs became contractured, the animal walking as if it had wooden legs. The contracture decreased progressively. Nevertheless, at the present time, six weeks after the operation, the legs are still a little stiff.

I then performed a sixth experiment with temporary tubing of the aorta in order to avoid medullary complications. The upper part of the descending aorta was laid open by a longitudinal incision, and a paraffined tube was inserted into its lumen and temporarily fastened. This small operation involved only a short interruption of the circulation. The circulation was immediately re-established, and it was possible to extirpate at leisure the anterior wall of the part of the aorta that had been tubed and to substitute for it a segment of vena cava preserved in cold storage. This operation lasted twenty-four minutes. The tube was then taken out through a small incision of the wall of the aorta and normal circulation was re-established. The animal recovered from the operation without incident. It died suddenly of hemorrhage twelve days after the operation. The accident was due to a fault of technic in preserving the vein in cold storage.

These experiments prove that operations on the thoracic aorta need not be dangerous, and by Meltzer's method they are as simple as abdominal operations.

The suture of the descending aorta is almost identical in technic with the suture of other arteries. On account of the size of the vessel and the thickness of its wall, however, the operation is easier. It is possible to use needle No. 12 and china silk No. 1. Only two retaining stitches are necessary. When the temporary hemostasis is good, the anastomosis can be performed in three minutes. The ascending aorta is very friable, and the

* From the Laboratories of The Rockefeller Institute for Medical Research, New York.

1. Meltzer and Auer: Jour. Exper. Med., 1909, xi, 622.

technic should, therefore, be modified. The thread tears the wall very easily. It is necessary to use U-shaped stitches like those of Jaboulay, although this kind of suture does not give a strong scar if the operation is very aseptic. This inconvenience could be avoided by a reinforcing continuous suture. The immediate results of the anastomoses and of transplantations are excellent. There is no reason to think that the ultimate results would be less satisfactory than those of the operations on the abdominal aorta, which are perfect even after several years.

The problem of operating on the aorta without interrupting the circulation presents several different solutions. In a case of sacciform aneurism, it would be possible to extirpate the sac and to close up the opening without interrupting the circulation, in performing the operation which I described some years ago as longitudinal exclusion. But if it is necessary to resect a large part of the wall or even a whole segment of the aorta, the problem is more difficult. Two other methods are theoretically possible: definitive or temporary lateral derivation and the temporary tubing. I have not yet attempted on the aorta the lateral derivation of the blood. But I have implanted a vein, preserved in cold storage, on the right auricle, in order to establish a collateral substitute for the superior vena cava. The operation was not very difficult. Unfortunately, the animal died of pleurisy two days later. The inconvenience of these methods is their complication. Temporary tubing is much simpler and more rapid. It permits of performing the operation as slowly as necessary, since the circulation goes on through the tube. I do not mean to imply that it is an ideal method, but it renders possible long and difficult plastic operations on the thoracic aorta.

DILATATION OF STRICTURE OF THE MALE URETHRA

WITH SPECIAL REFERENCE TO THE AUTHOR'S IRRIGATING TUNNELED AND GROOVED AND STANDARD SOUNDS *

VICTOR COX PEDERSEN, A.M., M.D.
Genitourinary Surgeon to the Out-Patient Department of the New York Hospital and House of Relief (Hudson Street Hospital)
NEW YORK

A stricture may be defined as an obstruction or closure, partial or absolute, of the lumen of any passage in the body. Thus, as familiar examples, the term "stricture" is applied to obstructions of the nose, throat, intestines and the urinary passages.

Among the commonest strictures are those of the male urethra, because trauma is not infrequent and infections of the urethral mucosa, especially gonorrhea, are common diseases. These always leave behind them, at one or more points of the mucous membrane, damage of sufficient degree and depth to cause the formation of scar-tissue, which, by the process of contracture or shriveling, leads to more or less closure of the canal. This narrowing progresses steadily for the worse as the years go by, in the vast majority of patients.

In a mill-stream the closure of a dam causes a backset or up-stream pressure of water along the main channel and all its tributaries in regular order. When the spillway is reached by the level of water a balance of backpressure and overflow is established, and thus a certain degree of relief is afforded. So in the urinary system, a urethral stricture by more or less closure checks the freedom of the passage of urine and causes back-pressure on the urethra, bladder, ureters and kidneys, in regular ascent from one to the other. The higher the dam in the stream and the tighter the closure of the stricture in the urethra, the more far-reaching and greater the changes in the mill-stream and the urinary apparatus, as the case may be.

Such are the "hydraulics" of stricture and are purely mechanical and truly physical effects of stricture on the balance of the urinary system—a poise which for life-long health thereof should never be disturbed. This is, moreover, exactly the reason why stricture is the most dangerous result of gonorrhea, whose degree and progressiveness are all too little appreciated by the average practitioner.

In selecting the method of treatment of stricture of the urethra, early diagnosis of incipient obstruction is the first step. By this statement is meant the dogma that no victim of injury or infection of the urethra should be discharged as "cured" without gentle, complete examination of the urethra for infiltrations or thickenings which are the starting-points or foundations of stricture. About a month after all other treatment of a gonorrhea, for example, has ceased, and presumably all the inflammation ended and doubtless the limit of Nature's own absorption of the infiltrations established, gentle dilatation of these points may be begun and continued until they disappear either fully or reasonably within the boundaries of all mucous membrane recovery. Unless they are fully resolved or absorbed, examination and perhaps treatment of them are indicated at fixed intervals, which may be determined only in each case as a law to itself. To attempt treatment of such infiltrations earlier than after a month of rest is usually to invite stricture-formation by mechanical irritation, and may be regarded as premature and incompetent interference with what may prove curable by Nature's own processes.

The foregoing method of curing urethral infections and traumatisms may be called prophylaxis and prevention of the many types of stricture which may later, and perhaps repeatedly, require radical and dangerous operations for permanent relief or for maintenance in a condition of even comparative safety for the patient.

The purpose of this monograph is to discuss dilatation of stricture of the urethra. Strictures vary so greatly, however, in character and behavior that no one method will be alone wise or efficient for all forms and manifestations of the disease. A very cogent resumé of the whole question of the treatment of stricture is given by White and Martin,[1] whom I quote below. The bracketed portions at the end of each paragraph are my own comments, and, it is trusted, will be accepted as offered with due deference.

SUMMARY OF TREATMENT

"1. Gradual dilatation is indicated as the treatment of choice in all recent, soft, or dilatable strictures found in any part of the urethra, without regard to the caliber of such strictures." [The key-term here is "recent stricture." If intervention with newly formed infiltrations is begun too soon they will be stimulated to form a traumatic stricture whose character will vary according to the nature, frequency and violence of the treatment and the reaction of the patient's tissues in such cases.]

"2. Continuous dilatation is indicated in uncomplicated strictures which are so tight that no instrument larger than a filiform can be made to pass. This continuous dilatation is prac-

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. White and Martin: Genitourinary and Venereal Diseases, ed. 8, pp. 255-256.

ticed till a small metal instrument can be introduced—No. 12 to No. 16 [French scale]. Then the normal caliber of the urethra is restored by gradual dilatation or by cutting, in accordance with the nature of the clinical behavior of the stricture." [To carry a tight stricture which accepts at first a filiform up to 12 to 16 F. by continuous dilatation might in many cases result in infection of the bladder. In my experience one or two filiforms will dilate the stricture to 7, 8 or 9 F., after which tunneled and grooved sounds may be employed. Uncomplicated strictures are, of course, understood as alone concerned in these statements.]

"3. Internal urethrotomy is indicated in all fibrous, irritable, and resilient strictures anterior to the bulbomembranous juncture. Narrowings at or near the meatus should be treated by the knife whenever it is apparent that they are responsible for definite symptoms. The division is here made on the floor of the urethra. All other anterior strictures are divided along the roof." [Before internal urethrotomy is ever attempted, except in emergencies, a bacteriologic examination should be made of pus present. If vicious germs are present local treatment should be attempted for their destruction before any operation whatever is practicable.]

"4. External perineal urethrotomy is indicated in all fibrous, resilient, or irritable strictures situated behind the bulbomembranous juncture." [The best or one of the greatest indications for external urethrotomy is the presence of pus which would be benefited by the drainage of this operation. The same comment is warranted with regard to the following paragraph.]

"5. Combined internal and external urethrotomy is indicated in the treatment of anterior strictures which are unusually dense or nodular and which are complicated by fistulas."

"6. Perineal section, or external perineal urethrotomy without a guide, is indicated in the treatment of impassable stricture of the deep urethra. When the proximal urethral end cannot be found, suprapubic cystotomy and retrograde catheterization are justifiable."

"7. Excision is indicated in cases of impermeable stricture, nodular or fibroid, where there has been complete destruction of mucous membrane. When so much tissue is removed that it is impossible to bring the divided urethral ends in apposition, transplantation of mucous membrane is indicated." [The majority of strictures are inflammatory. The end result of any excision operation must in greater or lesser degree be an annular traumatic stricture which, probably without a single exception, is the most intractable form of stricture, therefore the application of excision is deservedly a question of the gravest possible doubt.]

"Formulating the operative indications in accordance with the clinical features of the stricture, the following summary of treatment is given:

"1. Narrowings at or near the meatus, if treated at all, are always cut.

"2. Strictures of large caliber (greater than 15 F.) are treated by gradual dilatation. Cutting is almost never required when such a stricture is in the deep urethra; it is sometimes necessary when the stricture is anterior to the bulbomembranous juncture.

"3. Strictures of small caliber are treated by gradual dilatation if possible; when in the deep urethra they often require external urethrotomy; when anterior to the bulbomembraneous juncture they usually require internal urethrotomy.

"4. Impermeable strictures are treated by perineal section, followed at times by excision and mucous membrane grafting.

"5. Soft, recent, uncomplicated strictures are always dilated.

"6. Fibrous, nodular, irritable, strictures complicated by urinary fever, fistula, etc., are always cut."

The logical points of the subject of treatment of stricture by dilatation might be designated as the questions of diagnosis, armamentarium, preliminary treatment, actual treatment, and after-treatment.

DIAGNOSIS

Diagnosis is almost synonymous with selection of the case as available for dilatation. It rests on minute history, strict examination and careful observation. All these are essential before the systematic and progressive dilatation may be begun. The matter of diagnosis may be immediately dismissed on the ground that it is sufficiently covered by the foregoing quotation from White and Martin and my parethentical comments.

ARMAMENTARIUM

The instruments ordinarily required for the dilatation of stricture are filiform whalebone guides; tunneled and grooved silver catheters; tunneled and grooved metallic sounds; soft, flexible lead-core, cone-pointed or olive-pointed, silk or lisle-thread bougies; standard metallic urethral sounds, and assorted, flexible, rubber, silk or lisle-thread catheters.

One great danger of all strictures of the male urethra is that of reflex minor and brief, or major and prolonged anuria. In my careful observation of patients under the dilatation treatment of stricture, a very reliable and rational means of preventing reflex renal inhibition is to provide a reflex vesical action at the end of each treatment by filling the bladder with a blood-warm antiseptic solution. This "artificial urine" the patient voids before leaving the office, the evacuation thus quieting possible mental apprehension by permitting him to perceive the normal action of his bladder and also thus irrigating antiseptically his bladder and urethra under Nature's own pressure and process, and finally soothing the invaded portions of the urinary tract in a degree and manner which almost always forestall balking of the kidneys, with its consequent danger of even minor anuria. In passing, it may be noted that quinin, gr. 5, with fluid extract of aconite, minims 3, and morphin sulphate, gr. 1/4, for sthenic patients; and quinin, gr. 5, nitroglycerin, gr. 1/50, and codein, gr. 1, for asthenic patients, are admirable combinations for internal administration with the purpose of preventing reflex complications.

In order to produce the physiologic effect of an acting bladder on the kidneys, at the end of each treatment I have, in years gone by, always used the tunneled and grooved silver or the standard catheter, not only to evacuate the bladder as a preliminary to dilatation in selected cases, but also to provide, as a termination of treatment in all cases, artificial urine in the form of warm antiseptic solution just described.

Thus it will be noted that all cases have suffered at least double invasion of the urethra and bladder—once by the dilating instrument and once by the irrigating instrument. Predominant over all other considerations are the strict asepsis of the bladder and urethra and the prevention of reflex renal inhibition. Hence, this plan of procedure is justified, both as preventive and curative.

The doctrine is well established, however, that the less actively, less violently and less frequently the genito-urinary apparatus is invaded within the limits of reasonable indications of treatment the safer for the constitution as a whole and the better for the urogenital tract focally in the stricture and generally as a physiologic unit in the system.

Activity of treatment is indicated by the character and conditions of each case in itself, and is a matter for the judgment and experience of each individual specialist or surgeon to determine.

Violence of invasion is likewise subject to judgment and experience, and is also a factor of choice between soft

flexible instruments and rigid metallic instruments. The soft flexible lead-core cone-pointed or olive-pointed woven-silk or lisle-thread bougies have largely met the objections to soft instruments set forth by Lydston[2] in the following words:

> Soft bougies and catheters are not so easily managed as stiff metallic instruments, as their flexibility permits them to bend on themselves when they come in contact with a tight stricture. It is difficult, however, to produce injury with them, and, inasmuch as instruments should be coaxed rather than forced through a stricture, their function in the treatment of strictures of small caliber is of great importance.

Skill, gentleness, patience and persistence largely or even totally, in my opinion, give rigid instruments preference over flexible instruments, except in extensive, tortuous strictures. In this particular type of stricture steel instruments produce not only centrifugal dilatation, but also axial traction. Both these effects combined are usually more severe than the delicate urethral and periurethral structures will tolerate; therefore, inflammation and aggravation, rather than alleviation and absorption, usually follow the use of steel instruments in extensive tortuous obstructions. The lead-core dilators provide centrifugal dilatation but avoid axial traction in the hands of experts by accommodating themselves to the irregularities of direction of the urethra due to the tortuosities and extent of this type of stricture.

Nevertheless, the fact remains true to-day as when stated originally by Van Buren and Keyes[3] in 1874:

> In trained hands, however, the steel sound is perfectly safe; it is smoother than any soft instrument, and certainly can be passed into the urethra with less pain than can any other instrument, and is capable of effecting more dilatation, in the same length of time, with the employment of less force.

To this may be added the fact that steel instruments, being smoother, are much more aseptic than the best varnished instruments, and consequently in the long run are the better type of instrument to use.

Frequency of dilatation implies not only actual recurrence of visits to the operator, but also the number of times the obstruction is passed during each treatment. In order to reduce to a single passage of one instrument both irrigation and dilatation, I was led to devise my irrigating tunneled and grooved sounds and my irrigating standard sounds, recently described and illustrated in the *Annals of Surgery*.[4]

By the use of these instruments the armamentarium for the dilatation treatment of stricture is reduced to whalebone filiform guides and a set of my sounds.

PRELIMINARY TREATMENT OF STRICTURE

The preparation of the patient is the next detail for consideration. Rigid asepsis and antisepsis comprise not only proper sterilization of all instruments used and due cleansing of the penis and urethra, but also the establishment of the highest possible germicidal state of the urine. Except, therefore, in totally closed strictures, which require immediate intervention (which does not necessarily mean cutting operation), the visit at which the minute examination and accurate diagnosis of the stricture, so far as possible, are made, should be followed by a few days' course of urinary antiseptics before the actual and repeated dilatation begins. These drugs should always be continued during the treatment in order to minimize the danger of infection. The most effective combination I know is from 5 to 10 grains each of benzoate of soda and hexamethylenamin three times a day in a glassful of hot water two hours after eating.

One very important detail undoubtedly practiced, but rarely mentioned in preliminary treatment by authors, is care of and relief from the pus-organisms and chronic urethritis whenever possible, before the dilatation begins. Many strictures which are permeable to urine may remain undilated for a short time in order to remove as much infectious material as possible, provided always and, of course, there are no symptoms of urgency or indications for immediate intervention.

Irritability and congestion of many strictures may be greatly reduced by hot sitting or general body baths before each treatment. A few minims of fluid extract of aconite are very serviceable for the same purpose by internal administration.

G. Frank Lydston[5] states:

> The preliminary administration of anodynes, the continuous use of nerve sedatives and antispasmodics, and, if necessary, anesthetics, are frequently useful adjuncts to treatment by dilatation.

In the experience of most genitourinary specialists, the belladonna group (more especially hyoscyamus) is the most serviceable and reliable anodyne sedative and antispasmodic. The tincture may be given in doses of from 10 to 30 drops, three times a day, combined with the antiseptics previously mentioned.

A stricture which requires a general anesthetic is in no sense suited for the dilatation method of treatment. Therefore, only local anesthetics are probably considered in the foregoing quotation. I have obtained the best results with eucain, 2 to 4 per cent., and alypin, 2 to 4 per cent., solutions. There is a point, however, against the promiscuous use of even local anesthetics which will be elucidated later in this paper. It concerns, in brief, the likelihood of misleading the operator.

ACTUAL TREATMENT OF STRICTURE

The actual treatment must concern the two broad types of the lesion—the open or large-caliber and the tight or small-caliber stricture. From the standpoint of facility of instrumentation itself, an open stricture may be regarded as one which accepts a 20 F. sound in the hands of an ordinary practitioner or an 18 F. sound in the management of the skilled and experienced specialist.

It probably was noted that the foregoing quotation from White and Martin in the early part of this paper described size 15 F. as an open stricture. It might be said in this connection that a stricture smaller than 18 F. is rather inclined to be on the border-line between complicated and uncomplicated manifestations. It is doubtless, therefore, better judgment to make the distinction on a broader basis and take the limits 18 and 20 F. as specified. Such a rule for the general practitioner is vastly safer than any other.

Dilatation of the open type of stricture at the rate of one or two numbers of the French scale at each sitting, combined with all the foregoing precautions, is, comparatively speaking, a simple matter. It is rendered still more simple and safe and likewise more agreeable to the patient by the use of the standard irrigating sounds of my pattern, precisely for the reason of comfort afforded by the minimum of instrumentation and by the final function of the bladder at the end of each visit.

2. Lydston, G. Frank, in Bangs and Hardaway: American Text-Book of Genitourinary Diseases, Syphilis and Diseases of the Skin, 1899, p. 176.
3. Van Buren and Keyes: Genitourinary Diseases with Syphilis, 1874, p. 113.
4. Pedersen, V. C.: Ann. Surg., October, 1909.
5. In Bangs and Hardaway: American Text-Book of Genitourinary Diseases, p. 178.

Strictures which are of smaller caliber than 20 or 18 F. usually are combined with atrophy of the urethra in front and dilatation with hypertrophy or atrophy behind, so as to render the passage of whalebone filiform guides of supreme and final importance, and a manipulation of no small delicacy. In passing, it must be noted that only genuine whalebone guides are safe. Rubber guides are treacherous and hazardous. Either through age or disease whalebone finally dries, splinters or splits. Consequently no filiform should be applied without first careful inspection, because if the filiform breaks within the bladder immediately a serious operation is necessary. I have already reported a case of fragmented filiform removed from the urethra without operation.[6]

The passage of the filiform must be accomplished with gentleness and precision, and without irritation, pain or bleeding, as far as possible. Gentleness and precision of insertion of the whalebone guide rest with the personal equipment of the operator in terms of his skill, delicacy, patience and experience. Irritation, pain and bleeding are avoided or reduced by instilling local anesthetics, as previously mentioned, or preferably and advisedly by instilling local hemostatics, of which none is more reliable or satisfactory than 1 in 1,000 adrenalin chlorid solution. In this solution eucain or alypin may be dissolved. The patient holds this medication in the urethra five minutes. As previously implied, the use of local anesthetics is frequently inadvisable, and may be avoided by gentleness and deliberation. Otherwise the patient's sensation is abolished, and the operator, therefore, loses one of the best guides as to the degree of dilatation being accomplished and perhaps the degree of traumatism caused.

A urethroscope passed to the face of the stricture is often the means of finding and passing the lumen. Otherwise a number of whalebones are variously and differently bent at their tips and passed into the urethra in turn. Each filiform, after failure to pass, is left *in situ* until the urethra is reasonably filled with them. After every three or four have been inserted without passing the obstruction, each filiform of the whole number within the urethra is again tried in succession until, by mutual guidance and support, finally one enters the lumen of the stricture and its tip is passed into the bladder. All the other filiforms are then cautiously removed from the urethra.

I prefer filiforms two feet long. The half-length is coiled within the cavity of the bladder, and next nine inches are within the urethra and the remaining three inches outside the penis. Thus it is possible always to prove the freedom of motion of the filiform within the tunnel of the sound. This is, indeed, a most important detail, because at all times the operator must be sure that the sound, as it progresses through the stricture, is not buckling or folding the filiform on itself as it is advanced forward. In the original description[4] of my special sounds it was noted that the tunnels for all the sizes are identical in diameter and length. The object of this design was to provide a uniform "feel" or sensation to the operator as to this matter of freedom of the filiform within the tunnel of the sound.

I determine the freedom of the filiform in two ways, more or less interchangeable at will. First, as the sound is advanced by a true and actual "coaxing" through the urethra, every moment or two the filiform is pulled out by perhaps an inch or less. If it moves freely, the next advance by "coaxing" is accomplished. If the filiform does not move freely, the sound is retired by the amount of the last advance, the filiform again tested, and if it moves without resistance the advance of the sound is renewed and continued, step by step, until the stricture is fully passed. The second method of proving the freedom of the filiform within the tunnel is to hold the free end of the filiform fixed in the left hand and to advance the sound steadily over it. If any feeling of binding or resistance is perceived, the advance of the sound stops and then the first method of passing along the filiform is applied. Frequently, however, the sound will advance so easily that only the second or less troublesome test of the "play" of the filiform within the tunnel will be required.

Occasionally the difficulty of passing a filiform is so great that the wisdom of a temporary continuous dilatation is indicated. By this term is meant that one or two whalebone guides are left in the urethra and bladder, passing through the stricture, for several days. During this time they gradually swell, and gently induce, both by swelling and by mechanical presence, an opening of the stricture. After this has occurred, almost always instrumental dilatation may be begun and continued.

It may be noted that I have not mentioned woven filiform guides. This has been because, like other woven instruments, they are in ordinary experience and probability not as easily sterilizable as the whalebone guides. They also not infrequently possess the disadvantage of too great flexibility. This was set forth admirably by Gouley[7] as follows:

> Though the soft bougies of Leroy answer well in many cases, I have often verified the fact that the instrument coiled in front of the stricture, and sometimes doubled itself so that the point appeared at the meatus when it was believed to have passed into the bladder; these very common failures are due to the too great flexibility, and to the want of spring of such bougies. For these reasons I have, for many years, used in their stead slender probe-pointed shafts of whalebone . . . which possess great advantages over both the French and English capillary gum bougies, being more elastic than either of the latter, and less liable to coil in the urethra, while they adapt themselves admirably to the inflections of the canal, and can be made so small as to enter the narrowest constrictions.

As a rule, at the first treatment all strictures which are suitable for dilatation at all may be enlarged by two or three numbers from size 7 F., which is the size of the smallest sound of my pattern for irrigation and dilatation considered advisable and safe on the ground stated in the original description.[5] A stricture which will not take 7 F. usually demands treatment other than dilatation.

Thus, when the patient leaves the office the urethra has been brought up to 9 or 10 F. caliber.

The question might be asked why the size 7 F. is taken. The grounds are two: First, Maisonneuve probably had had large experience with stricture of urethra before devising his urethrotome. The guide of this instrument is size 7 F., apparently because this diameter is about as small as may wisely be employed in a rigid instrument from the standpoints of injury to the urethra and of stability of the guide for passing the knife. Second, strictures smaller than 7 F. are almost invariably complicated in varying degrees and manners; particularly common is chronic infection of the urethra with dilatation and hypertrophy or dilatation and atrophy of the bladder-side of the lesion. Any and all these conditions are benefited by the drainage of an open operation. Thus it will be seen that selection of the

6. Pedersen, V. C.: Med. Rec., New York, Nov. 20, 1909.

7. Gouley: Diseases of the Urinary Organs, 1873, p. 51.

size 7 F. is warranted by clinical observation and judgment, and does not rest on merely arbitrary opinion.

The efficiency and prolongation of each dilatation are increased by leaving the sounds *in situ* five or ten minutes. This fact is analogous to that taught by gynecologists, namely, that slow dilatation of the cervix uteri is more lasting than rapid. Such dicta hardly need discussion or argument.

Either in open or close strictures, as previously defined, when the proper degree and duration of a given enlargement are accomplished, the obturator of the sound is withdrawn and the bladder treated according to indications, namely, evacuated and irrigated until as clean as may be, and finally filled with the antiseptic solution, the artificial urine previously described. The sound, carrying the filiform with it, is now withdrawn and the patient allowed to rest a few moments and thereafter to empty his bladder.

Instead of withdrawing the filiform with the sound, the filiform may be left *in situ* in order to maintain the dilatation and to avoid the difficulties and dangers of passing it again at the next visit, provided there has been great difficulty in so doing at the initial session.

The application of these sounds to dilatation of stricture has been made by myself and my associate, Dr. Walter B. Brouner, for more than a year,[8] with unbroken success and unquestioned satisfaction. Patients on whose intelligence reliance may be placed, who have had non-irrigating dilators applied by the hands of others and of myself and then have had my irrigating sounds passed, state that there is no comparison between the two as to comfort at the end of the treatment. These statements by patients hold true no matter whether the tunneled grooved irrigating or standard irrigating sounds are employed. For this reason at the present time I employ no other form of sound than the irrigating type, and rarely enter the bladder without providing the patient with antiseptic fluid as an artificial urine as the last step of treatment.

AFTER-TREATMENT OF STRICTURE

Careful inquiry among patients coming from general practitioners elicits the fact that the after-treatment of stricture is more or less neglected. It comprises two steps, the after-treatment of active instrumentation and the later prevention of relapses of the strictures. During active treatment the patient should always have a few moments' rest in the office, and should be told to observe between treatments sexual rest as far as possible and urinary rest by the avoidance of alcohol, condiments and adherence to proper, that is, simple diet.

Urinary antiseptics are wisely administered for at least the first twenty-four hours after each dilatation. Antispasmodics are best provided for by the free drinking of water, light diet and abstinence from sexual intercourse and alcohol. Mental reassurance of the patient is very necessary, as to the facts that there will necessarily be a little pain on urination, occasionally a little discomfort during erection, and sometimes a little discharge for the first day or more after instrumentation. The patient should know that all these things are normal results of the mechanical treatment, are unavoidable and not matters of concern.

As to the terminal after-treatment, that is, the avoidance of recurrence of the stricture, a patient with stricture should be taught that, since the stricture is fundamentally only a scar, it cannot ordinarily be literally removed from the passageway; only its power of obstruction is corrected. He should know, therefore, that, like all other scars, strictures with age and time tend to dry or harden and shrivel or contract and thus to reclose or reobstruct the urethra. When he understands that this is the law of all scar-tissue, and therefore the law of stricture, he will be only too ready to report once or twice a year for observation, and, if necessary, correction of any slight relapse present.

Attention to these details and the employment of the irrigation method of dilating the strictures as embodied in these sounds will, I am convinced, render the management of stricture-cases far more felicitous. If one might utter an epigram to sum up the dilatation treatment of stricture for the general practitioner and general surgeon, it would be in the majority of cases: Maximum results, minimum interference.

NOTE.—In addition to the authorities already cited, the following, which were consulted in the preparation of this article, may be found of interest by the reader:
Lett: Practitioner, 1908, lxxx, 45.
Watson: Boston Med. and Surg. Jour., 1907, clvii, 549.
Desnos and Minet: Traité des maladies des voies urinaires, Paris, 1909.
Tevass: Med. Press and Circular, 1881, xxxi, 27.
Englisch: Wien. Klinik, 1887, pp. 121-216.

45 West Ninth Street.

8. The shop drawings for these sounds bear the following dates: Beniqué curve irrigating sound, March 15, 1907; standard curve irrigating sound, March 29, 1907; short curve irrigating sound, Dec. 21, 1907; tunneled and grooved irrigating sound, Jan. 27, 1908.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JUDD, BARTLETT* AND PEDERSEN

DR. LINCOLN DAVIS, Boston: I have been especially interested in tumors of the bladder and in the transperitoneal operation advocated by Dr. Judd. My experience has been limited to three cases, but I have been very favorably impressed with the advantages of this method in the way of giving accessibility to the field of operation, and allowing a thorough and complete removal of the tumor. The operation is especially indicated in cases of broad-based tumors, or where there is infiltration of the bladder wall, or in cases of simple papillomata, where it is difficult to reach the tumor through the ordinary suprapubic incision on account of a thick abdominal wall. In two of the cases in which I went into the peritoneal cavity I made the ordinary suprapubic incision, but found it impossible to reach the tumor, which was very sessile. By enlarging the incision and making an opening into the peritoneal cavity, and packing off the intestine, it was an easy matter to split the posterior wall of the bladder and bring the tumor within reach. After opening the peritoneal cavity and posterior bladder wall I feel safer if a drainage tube comes out through the suprapubic space extraperitoneally. I do not think that it prolongs convalescence to any extent, and it is much safer. I do not believe that this operation is necessary in all cases of papilloma, but I do think it is especially indicated where there is any evidence of malignant disease. As to its dangers, I suppose that there is a slight increased danger, but I do not believe it to be very great. Preliminary cystoscopic examination is of the greatest importance in the case of tumors of the bladder. One can determine accurately the number of growths present, their size and position, and usually one can make a pretty shrewd guess as to the nature of the growth. I think it is very important to go over the whole surface of the bladder because a growth which is very apparent to the cystoscope, a villous growth floating in the fluid medium, may collapse and lie against the wall of the bladder, so that it is difficult to find it after the bladder is opened. In this country the tendency seems to be toward more radical operations for tumors of the bladder, as is evidenced in the work of the Rochester clinic. In Germany and in France they use the operating cystoscope more than we do. Of course, in the hands of Nitze, wonderful results have been achieved with the operating cystoscope, and clinicians are returning to that method with the idea that there is less liability to recurrence. I think that the data gathered during

* The papers of Drs. Judd and Bartlett appeared last week.

the next few years will be very interesting, showing which method will give the best results.

DR. WILLIAM E. LOWER, Cleveland: To secure early diagnosis of tumors of the bladder, it will be necessary to continue to do more missionary work among the general practitioners, and teach them that all cases of hematuria must be investigated, because in a large percentage of cases the bleeding is caused by some form of tumor of the bladder. It is important to determine the location and the attachment of the tumor. Of course, this can only be done by cystoscopic examination. Then a sufficient exposure of the field of operation by way of the peritoneum, if necessary, but outside of the peritoneum, if possible. There is no doubt that in cases with infection there is increased danger in going through the peritoneum, not in the skilled hands of the expert clinician, but in the hands of the occasional operator. The patient should be placed in an exaggerated Trendelenburg position. Hemorrhage must be controlled, and the wound in the bladder closed immediately. I insist that it is important that the bladder be closed immediately after operation, no drainage to be inserted, and no retention catheter to be introduced. In the majority of cases there is no leakage, and if a few drops of urine escape, no harm is done. The patients are up and about in a week or ten days, and the results, as a rule, are extremely satisfactory. I do not believe that it is possible to operate on all patients with malignant tumors. What does Dr. Judd do in unquestionably malignant tumors if he cannot do a radical operation?

DR. STEPHEN H. WATTS, Charlottesville, Va.: In connection with stricture of the urethra, I wish to direct attention to the value of resection in very extensive, almost impermeable cases. My attention was called to this by two cases that have recently come under my care, very extensive strictures, accompanied by fistulous openings in the perineum. Several openings were situated in the scrotum at the junction with the penis. I went into the perineum and divided the scrotum into two parts, turning the testicles out on either side. In that way I obtained a good exposure of the entire urethra up to the penoscrotal junction. I excised the stricture, took away all scar tissue possible to get good tissue approximation. You do not have to loosen up the ends of the urethra to any great extent, but it is surprising how easily you can free the urethra and how readily the ends come together. In one of my cases I excised an inch and a half and in another case an inch and a quarter, the ends coming together with little tension. The approximation was made over a rubber catheter in the urethra. Both patients did beautifully. I want to emphasize the importance of excising these extensive strictures and bringing the ends together. I believe that this is not done often enough. I saw one patient who had been operated on four times, and you can readily imagine the condition of the perineal urethra. It was nothing but a mass of scar tissue. In this case I could not have done anything else. I would like to have this procedure more universally adopted.

DR. J. BLOCK, Kansas City, Mo.: I was very much delighted with all the papers and particularly with Dr. Judd's, dealing with the removal of vesical tumors by the transperitoneal route. Of course, every case becomes practically a law unto itself. We ought to determine the size and location of these growths, especially in the case of a small tumor. If there is only one tumor the intravesical removal is relatively easy. As was stated before, the Nitze operating cystoscope, in the hands of a competent man, will accomplish all that is desired without a major operation, but I can very readily see that in the case of a very large tumor, especially when situated at the base, broadly attached, it will be necessary to select a more accessible route, and that is where the transperitoneal operation has its place. I was somewhat astonished a short time ago to read a report of three or four such cases in which an operation was done by a prominent operator, and where after reading the description of the operation one could readily perceive that the same work could have been done by the suprapubic method without incurring a possible risk of infecting the peritoneum.

Dr. Pedersen's paper is of unusual interest, especially since he includes every form of stricture, but I was surprised that he did not lay more stress on the feasibility and appropriateness of treating all strictures, except the most resilient, by dilatation. You can accomplish as much by dilatation as by a cutting operation, and inasmuch as no form of treatment is an absolute guarantee against the recurrence of the coarctation, the easier method would seem the best to adopt. Like Dr. Watts, I prefer excision. I have excised strictures where it was necessary to divide the scrotum to get access to the part, for the reason that the stricture was situated near the triangular ligament. Several times, in boys not over 10 or 12 years old, suffering from traumatic stricture, as much as half an inch was removed and excellent results were obtained by simply coapting the freshened proximal and distal ends of the tube with sux catgut stitches and allowing a Nélaton catheter to remain in place to serve as a splint.

DR. JOHN H. GIBBON, Philadelphia: I first saw this operation Dr. Bartlett describes performed by Dr. Richard H. Harte, of Philadelphia, six or eight years ago. Up to that time I did not know that it was possible to excise the hydrocele sac without rupture. I have done it on one occasion since then, but the Doyen operation is so much simpler and gives such good results that I usually employ it. There is no doubt that the operation which he describes is the perfection of the excision operation.

DR. F. C. VALENTINE, New York City: Posner, in speaking of the so-called impermeable stricture, defined it as an evidence of the physician's inaptitude and the patient's lack of patience. He holds, and my experience has confirmed his view, that there is no such thing as an impermeable stricture. With patience, and if the patient will submit, I have found that all strictures are permeable to at least the smaller filiform bougies. A permeable stricture was defined by the essayist as one admitting a 20 French in the hands of the general practitioner, and an 18 in the hands of the specialist. With a lumen of that size, the patient can always empty his bladder, and therefore the principal danger of that class of stricture, that of an ascending vesical infection, is most unlikely. If I understood Dr. Pedersen correctly, he considers the whalebone sounds safe, as compared with woven filiform bougies. I cannot agree with him, for the very reason that the whalebone bougie is likely to splinter, and yet there are cases in which it is useful. He also said that a 7 French is the smallest stricture that would admit of dilatation, and therefore one would have to resort to other remedial measures, alluding, of course, to urethrotomy. In this, again, experience leads me to differ. For the treatment of apparently intransitable stricture I would start from the proposition that if conditions do not permit traversing the urethra, suprapubic puncture twice or even three times daily will give the needed immediate relief. Within a day or two, a fine filiform can usually be coaxed through the urethra. This accomplished, the way to effective dilatation is prepared. Of course, with an infected bladder, under the circumstances now being considered, cystotomy is imperatively required. When, however, dilatation, which the author so ably advocates, is feasible, the cardinal objects of treatment—reestablishment of free normal vesical evacuation, restoration of the urethra's suppleness, and a normal mucosa—are best attained.

DR. E. S. JUDD, Rochester, Minn: With reference to the point which Dr. Davis made, that he felt safer in making suprapubic drainage,—while we have drained in some cases, it has always been in cases in which we interfered with the prostatic urethra; otherwise we prefer not to drain.

I class these cases with resection of the intestine or gastroenterostomy. There is here no more reason for draining than there is in those operations. The convalescence is shortened considerably if one is able to close up the bladder.

As to the difficulties in complete removal of the bladder, we have not as yet satisfactorily removed the entire bladder, and conservative operations in cases where the growth is too extensive for removal have not been satisfactory. We have removed the small growths with the cystoscope, but it has been in unsatisfactory cases and had showed the greatest number of recurrences. My point in this paper is that in most cases of tumor of the bladder the growth is situated at the base, a part of the bladder that cannot be reached easily through a suprapubic incision. If the tumor is in one of the

upper quadrants, we prefer to remove it through a suprapubic incision.

DR. V. C. PEDERSON: With regard to incision of the urethra, I intended to lay down the general rule that no other method should be adopted until dilatation has been given a fair trial. It has always seemed to me that excision of the urethra, substituted for an inflammatory condition, a traumatic condition, and every one knows that the most intractable of all strictures to treat are the traumatic ones, consequently I have never found a stricture which to my best judgement required excision.

With regard to Dr. Valentine's proper criticism, in an abbreviated paper one can hardly do the subject of stricture justice. He has assumed that I did not say that some strictures are so tight as to require the retention of a filiform bougie for two or three days, whereas the limit I stated, namely 7 French, applied only to the initial application of tunneled sounds in a closed stricture. A 15 French sound is a little too small for the average case unless a guide is also used. Dr. Valentine stated that the acme of cure is the restoration of the mucosa to its normal condition. I do not believe that that is possible in the preponderating majority of cases of stricture because strictures proceed from destroyed mucous membrane which cannot be restored. Stricture is sometimes periurethral scar tissue which cannot be removed but only dilated or stretched so as to obviate the obstruction. The cutting operation must be followed up by the passage of sounds and only recently I saw a case in point that had been operated on a number of times ineffectually simply because no bougies were passed afterward.

A COMPARATIVE STUDY OF DIGALEN

WORTH HALE, M.D.
Assistant Pharmacologist, Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service
WASHINGTON, D. C.

Among those drugs which act as direct stimulants to the heart's action none have been found which are able to replace the preparations of *Digitalis purpurea*. It has long been clearly recognized, however, that digitalis medication is complicated by a number of undesirable secondary effects. Briefly, these are its accumulative action, its tendency to produce disorders of appetite and digestion, and, finally, its irritant action, which interferes with its use by the hypodermic method. These untoward effects are so marked at times as to prevent the use of the drug; they always make great caution necessary in the administration in order that dangerous toxic effects may not follow.

The use of digitalis is further complicated by the fact that its therapeutic effects often do not appear until about the second day after medication is started, a drawback which makes it of practically no value in cases of acute heart failure. In certain cases the effect fails to appear even after several days, while in others the first indication that the drug has been absorbed is the appearance of symptoms of poisoning. These latter disagreeable features of the drug's action are usually ascribed to differences in the reaction of the patient, but it seems equally or even more probable that they are often due to variations in the potency of the drug used, the preparation being in one case much weaker, in another much more active than the normal.

Many attempts have been made from time to time to secure a digitalis preparation without these various undesirable qualities. Unfortunately, however, these efforts have not resulted in much success, although a large number of special formulas have been used in preparing the crude drug for therapeutic use. In this connection, the so-called pure principles of digitalis have been suggested as offering a solution of the problem. These, however, although possessing the desirable effects of the crude drug are by no means free from its undesirable secondary effects. Of these digitoxin, the glucosid which occurs in the greatest amount in digitalis leaves, is by far the most potent. The use of digitoxin in therapeutics is made practically impossible, however, by its excessively irritant action, its tendency to produce disorders of digestion, its marked accumulative action, and, less important, its insolubility in water, which makes its administration difficult excepting in tablet form. In 1904, however, Cloetta[1] announced that as a result of several years' labor he had been able to isolate a digitoxin from digitalis leaves which was almost entirely devoid of these drawbacks. This new digitoxin (for sale under the trade name digalen) from a physical standpoint differed from the crystalline product of Schmiedeburg and Kiliani in being amorphous and in being much more soluble in water. From the therapeutic standpoint, according to Cloetta, it differed even more widely, being easily absorbed, the digitalis effect appearing within twenty-four hours, being without accumulative or toxic action and being so free from irritant qualities as to make it suitable for subcutaneous, intramuscular or intravenous injection. Moreover, being a definite chemical substance, it afforded a preparation entirely devoid of the variability so often present in the crude drug.

Aside from Cloetta's own investigation, the only work done regarding the identity of digalen with crystalline digitoxin was carried out by Kiliani,[2] who has done far more work on the chemistry of digitalis than any other investigator. He was unable to accept Cloetta's view, but rather pointed out that the formula given by Cloetta[3] for digalen does not correspond to that for the crystalline substance, the former having a formula of $C_{14}H_{23}O_3$ with a molecular weight of 287, the latter of $C_{34}H_{54}O_{11}$, a molecular weight of 638. Kiliani concludes that digalen is only a high percentage of digitalein.

Clinical results would seem to indicate that Cloetta and a number of the clinicians who reported invariably good effects from digalen were in error (or based their conclusions on an inadequate number of cases) regarding the superiority of amorphous digitoxin over the older preparations of digitalis. A review of the literature (Reitter,[4] Vlach,[5] Frankel,[6] Mueller[7]) shows that digalen is not devoid of cumulative action; that it possesses marked irritating properties, so irritant as to make subcutaneous injection practically impossible, causing edema and pain, lasting in some cases for two and three days and often causing great pain when given intramuscularly, or if given intravenously causing in some cases edema and thrombosis (Kottmann,[8] Hochheim,[9] Liverato,[10] Veiel,[11] Teichmann[12]); that it causes disturbances of digestion apparently as often as the older galenicals, with loss of appetite, nausea and vomiting (Eichhorst,[13] Veiel,[11] Teichman,[12] Mueller[7]), and that its effects do not appear more rapidly than from corresponding doses

1. Cloetta: München. med. Wchnschr., 1904, li, 1466-1468.
2. Kiliani: München. med. Wchnschr., 1907, liv, 886, 1112; Ber. d. deutsch. chem. Gesellsch., 1907, xl, 2996.
3. For Cloetta's reply to this criticism see München. med. Wchnschr., 1907, liv, 987.
4. Reitter: Wien. med. Wchnschr., 1905, lv, 2245.
5. Vlach: Prag. med. Wchnschr., 1906, xxxi, 43.
6. Frankel: Arch. f. exper. Path. u. Pharmakol., 1907, lvii, 123.
7. Mueller: München. med. Wchnschr., 1909, lvi, 904.
8. Kottmann: Ztschr. f. klin. Med., 1905, lvi, 128.
9. Hochheim: Zentralbl. f. inn. med., 1905, xx, 545.
10. Liverato: Cron. d. clin. med. di Genova, 1905, xi, 276.
11. Veiel: München. med. Wchnschr., 1906, liii, 2140.
12. Teichmann: Therap. d. Gegenw., 1907, xlviii, 199.
13. Eichhorst: Deutsch. med. Wchnschr., 1905, xxxi, 49.

(based on the manufacturer's claim that 0.3 mg. amorphous digitoxin (Cloetta) = 0.150 gm. folia digitalis) of the older preparation. Mueller,[7] in a series of 18 cases, observed effects from doses of 6 c.c. of digalen on the second day, namely, increased amounts of urine or a decrease in heart rate. From doses of 5 c.c. the effect appeared first on the second and third day, doses of from 3 to 4 c.c. on the third to the fifth day, and from doses of 2.25 c.c. the action appeared on the fourth to the fifth day. From doses of 400 mg. of folia digitalis (in terms of digalen 2.66 c.c.) the effect appeared on the second day; 300 mg. of the leaves (equal to 2 c.c. digalen) produced effects on the third day, and Mueller remarks that these effects were not only more constant, but were also more powerful than from digalen. To facilitate comparison, these results are summarized in the following table.

TABLE 1

Time of onset of the therapeutic effects of digalen and folia digitalis with corresponding doses (doses of folia digitalis based on the manufacturers' claim that 1 c.c. digalen = 150 mg. of the leaves).

Doses in c.c. per day..	6	5	4	3	2.66	2.25	2
Day effects from digalen appeared	2	2-3	3-5	3-5	....	4-5	..
Day effects from folia dig. appeared	..	..	..	..	2	....	3

Walti[14] and Teichmann[12] also were unable to observe effects in the cases reported by them until the second or third day, and Frankel,[15] from observations of the pulse and amplitude, reports that a digitalis action is manifest after 0.3 gm. doses[16] of digitalis leaves as follows:

Patient.	Effects, Hours.	Patient.	Effects, Hours.
1	22	5	25
2	20	6	23
3	17	7	23
4	24	8	24

Regarding the claim that digalen is an efficient remedy in acute heart failure, von Ketly[17] reported that the effects did not appear more quickly when given subcutaneously than by the mouth. Kottmann[8] reported, however, that if digalen was given intravenously in large doses, 5 to 15 c.c. (amounts which were necessary to produce a distinct digitalis action) the action appeared in from two to five minutes. The danger of this method of exhibition makes such a use very questionable, however, as Teichmann[12] observed edema and thrombosis and, in one case, after a dose of 4 c.c., general tonic-clonic convulsions.

It seems rather strange that digalen has been accorded so much attention at the hands of the clinician in view of these reports and that so few experiments have been carried out on animals. A few investigations have been carried out, however, and these have tended to show that digalen had a true digitalis action—a result entirely in accord with Kiliani's report, however, that digalen was only an impure digitalein—the latter glucosid also having the same effect as digitoxin on the heart, excepting that it is manifested to a lesser degree. It seems doubly strange on account of Kiliani's denial of the chemical identity of this new digitoxin with the older crystalline substance that comparative studies were not made along the lines used in the biologic standardization of the digitalis series. Neave,[19] apparently the only investigator to make such a study, reported from his experiments on frogs and rabbits that, although digalen has the characteristic action, it is very much less active than a like amount of crystallized digitoxin, 1.2 mg. amorphous digitoxin (Cloetta) causing a rise in blood-pressure of only 14 per cent.—a slowing in rate of 2 per cent. as compared with a rise in pressure of 21.9 per cent., a slowing in rate of 14.7 per cent. from 0.5 mg. crystalline digitoxin.

Owing to the claims of the advertising literature which ignores these various reports, and in view of the statement of Kottmann and others that digalen equaled crystalline digitoxin in activity, as it should if chemically identical with it, a series of experiments were undertaken at this laboratory to determine biologically the relation of its activity to that of digitalein and crystalline digitoxin.

The most accurate method of determining the therapeutic value of digitalis preparations is biologic rather than chemical. Of the various biologic methods, that of using the typical action of digitalis on the frog's heart as a final reaction is more commonly used than all other methods, but determinations of the rise in blood-pressure of the minimum lethal dose for mammals have also been used as tests for the activity of the preparations under question. The method adopted at this laboratory for general use is a frog-heart method. The frogs, *Rana pipiens,* are carefully weighed and the dose estimated in terms of grams of body weight of the animal. The drug is injected into the anterior lymph-sac and at the end of an hour the animal is pithed, the heart is exposed and its condition noted. The heart should have just stopped beating and should be in firm systolic contraction. If the dose has been too small to bring this about, larger amounts are given until the desired results are obtained; if too large, the dose is reduced. Five different samples of digalen[20] were examined according to this method. These were all obtained in the open market, but one had been in stock at this laboratory for about two years and two others for about three years; the remaining two (Samples 4 and 5) were obtained during the summer. The appearance of the various samples was very much the same, although the older preparations appeared somewhat more tinged with yellow. One sample, however, that of 1905, had evidently undergone some marked chemical change since it contained a considerable amount of a dark brown granular substance,[21] a precipitate not present in any of the other samples.

These various samples were tested for their effect on the frog's heart in the manner described above and gave the results shown in Table 2.

From the summary it will be noted that the several samples of digalen varied in value from about 0.02 to over 0.04, the older preparations generally testing weaker than those of more recent manufacture, thus indicating deterioration with age, despite the claim that digalen is a stable preparation of digitalis.

In order to compare the value of these samples of digalen with digitoxin and digitalein, experiments were carried out on frogs, using the same experimental procedure as nearly as possible. The results, using Merck's crystalline digitoxin and Merck's digitalein, are as shown in Table 3.

14. Walti: Deutsch. Aerzte- Ztg., 1904, p. 461.
15. Frankel, A.: Arch. f. exper. Path. u. Pharm., 1907, lvii, 131.
16. It is to be noted that this amount of leaves corresponds to 2 c.c. digalen, which produces its first effect about the fourth to fifth day, according to Mueller.
17. Von Ketly: Therap. Monatsh., 1906, xx, 272.
19. Neave: Scot. Med. and Surg. Jour., 1907, xx, 390.

20. Through the courtesy of the manufacturers the dates of manufacture for the several samples were obtained, viz., No. 1, 1905; No. 2, 1906; No. 3, 1907; Nos. 4 and 5, 1908.
21. I am indebted to Mr. M. I. Wilbert for this sample and for the statement that when the precipitate first formed it was nearly white and that it had become dark on standing. It is also to be noted that in no instance had these samples been opened, so that this change came about as a result of natural causes and was not a deterioration due to opening the bottle, etc.

V 19

TABLE 2

Determination of the systolic stoppage of the heart of *Rana pipiens* in one hour. Drug injected into abdominal lymph-sac. The doses are given in milligrams per gram of body weight.

Number of Frogs Used.	Dose Mg.	Result.
DIGALEN NO. 1		
1	0.020	..
1	0.030	..
1	0.035	..
1	0.035	..
1	0.040	+ (?) Diastole.
DIGALEN NO. 2		
1	0.020	..
1	0.025	..
1	0.030	..
1	0.030	+
1	0.035	+
DIGALEN NO. 3		
1	0.020	..
1	0.025	..
1	0.030	..
1	0.035	+
1	0.040	+
DIGALEN NO. 4		
1	0.020	..
1	0.020	..
1	0.025	..
1	0.025	+
1	0.027	..
1	0.030	+
DIGALEN NO. 5		
1	0.010	..
1	0.015	..
1	0.020	.. (?) Diastole.
1	0.022	+ Systole.
1	0.025	+
1	0.030	+

Summary.	Minimum Lethal Dose. Mg.
Digalen No. 1	0.040 (?)
Digalen No. 2	0.030
Digalen No. 3	0.035
Digalen No. 4	0.027
Digalen No. 5	0.022

TABLE 3

Determination of the systolic stoppage of the heart of *Rana pipiens* in one hour. Drug injected into the abdominal lymph sac. The doses are given in milligrams per gram of body weight.

Number of Animals Used.	Dose Mg.	Result.
DIGITOXIN IN 25 PER CENT. ALCOHOL		
1	0.006	..
1	0.007	..
1	0.008	+
1	0.008	+
1	0.009	+
DIGITALEIN 7 PER CENT. ALCOHOL, 25 PER CENT. GLYCERIN		
1	0.025	..
1	0.026	..
1	0.026	+
1	0.027	..
1	0.028	+
1	0.028	+
1	0.029	+

The results of these experiments on frogs would indicate that digalen, basing conclusions on the assay of the best testing samples, occupied a place between crystalline digitoxin and digitalein, the comparative values, according to the above tests, being crystalline digitoxin 0.008, digalen 0.022, and digitalein 0.028.

Experiments were also carried out to determine the comparative effects of the various samples of digalen on blood-pressure. For this purpose, cats of about the same weight (3,000 to 3,600 grams) were used and were anesthetized for the experiments by ethyl carbamate (urethane) and chloral given by the stomach. The blood-pressures were taken from the carotid artery and the injections of the drug made through the external jugular. In working with digitalis it is ordinarily advisable, on account of its accumulative action, to take no reading except the first as determinative, but in this series, after an interval of an hour, further injections were made and the readings incorporated to make up the average. In all cases 2 c.c. doses were used, and the rise in blood-pressure and the decrease in heart-rate estimated in per cent. The results of this series of experiments are given in Table 4.

TABLE 4

Summary of experiments made on the blood-pressure of cats.

	Average Decrease in Rate.	Average Increase in Blood-Pressure.
	%	%
Digalen No. 1 (two readings)	2.0	7.1
Digalen No. 2 (two readings)	7.7	3.6
Digalen No. 3 (two readings)	6.9	5.0
Digalen No. 4 (four readings)	5.0	7.7
Digalen No. 5 (four readings)	6.2	10.2

The results tabulated in this summary agree in a general way with those obtained in the experiments on the frog's heart, viz.: the oldest preparations give the smallest increase in pressure. Exceptions are to be noted, however, in the case of Sample 1, which gives a relatively marked increase in blood-pressure, but failed to stop the frog's heart in systole. Also Sample 2, which assayed on the frog's heart somewhat higher than Sample 3, has somewhat the lesser effect on the blood-pressure.

Blood-pressure experiments were also carried out with digitoxin (Merck) and digitalein (Merck) in order to compare their effect with that obtained from the use of digalen.

The digitoxin was dissolved in 25 per cent. alcohol, the digitalein in 25 per cent. glycerin and 7 per cent. alcohol, the solvents used in the manufacture of digalen.

Digitoxin in three experiments, using 0.2 mg. doses in two cases and 0.4 mg. in the other, gave an average rise in pressure of 22.1 per cent., along with a decrease in rate of 7 per cent.

Digitalein, in an average dose of 1 mg., gave a rise in blood-pressure of 9 per cent.; the heart-rate was slowed on the average 10 per cent.

In view of the fact that the average rise in blood-pressure from 2 c.c. doses of digalen (0.6 mg. amorphous digitoxin) was only 6.7 per cent., and that the average decrease in rate from the same dose was only 5.6 per cent., one may conclude that digalen is considerably less active than crystalline digitoxin and that it is of about the same potency as corresponding amounts of digitalein. This conclusion is also borne out by the following series of experiments.

White mice of the same lot were weighed, placed in separate jars and injected beneath the loose skin of the back with digalen, digitoxin (Merck) and digitalein (Merck). The doses were calculated in terms of grams of body weight. Increasing amounts were injected until the minimum lethal dose was obtained. The results of these experiments are given in Table 5.

TABLE 5

Determination of the minimum lethal dose for white mice, subcutaneous injection. Dose in milligrams per gram of body weight.

Number of Mice Used.	Dose.	Result.
DIGITOXIN IN 25 PER CENT. ALCOHOL		
1	0.008	..
1	0.011	..
1	0.014	+
1	0.016	+
1	0.017	+
DIGALEN SAMPLE NO. 5		
1	0.030	..
2	0.040	..
1	0.050	..
1	0.060	+
DIGITALEIN 7 PER CENT. ALCOHOL, 25 PER CENT. GLYCERIN		
1	0.015	..
1	0.025	..
1	0.040	..
1	0.055	..
1	0.065	+
1	0.070	+

From this table it is apparent that the minimum lethal dose for digalen again is considerably larger than that for digitoxin (for mice about four times). Digitalein, as in other methods of testing, assayed weaker than digalen, but, according to this method, appeared to be very little weaker comparatively.

With regard to the general action of digalen on both frogs and mammals, it appears to possess considerably more stimulant action on the central nervous system than other digitalis preparations. In almost every case in the frog experiments the early symptoms of absorption were convulsive movements. At times these were clonic, but more often were tonic in character, the legs being extended and remaining in hyperextension for some time. The effect of digalen on mice was much the same, except that the convulsions were usually clonic in character. In the blood-pressure experiments no convulsions were so clearly present, the animal being anesthetized, but it was noted that struggling was often a sequel of the injection of even small amounts of digalen and that, to prevent this, further small doses of ethyl carbamate were necessary. It is of interest, in this connection, to remember that Teichmann[12] reported such symptoms of excessive central nervous system stimulation in a patient who was given 4 c.c. digalen intravenously.

CONCLUSIONS

Digalen is not a uniformly stable preparation, as is shown by the gross appearance of Sample 1 and by biologic tests of the five different samples. Biologic tests also indicate that digalen is relatively much less potent than corresponding amounts of crystalline digitoxin, but that it is of about the same activity as digitalein.

The experience of clinicians indicates that digalen is much less effective than is claimed and that the secondary action of the digitalis group appears equally often after its use as with the older and cheaper galenicals. Its use in cases of acute heart failure, whether by intramuscular or intravenous injection, seems to open serious objection (on account of the pain and danger of thrombosis) and it would apparently be better practice in such cases to use either strophanthin given intramuscularly or one of the preparations of the suprarenal glands by intravenous injection.

Twenty-fifth and E Streets N. W.

The Influence of Carbohydrates and Fats on Protein Metabolism. — That carbohydrates are most probably important factors in protein metabolism is shown by E. P. Cathcart (*Jour. Physiol.*, October, 1909, xxxix, 311,) in a series of dieting and fasting experiments on human individuals. The amount of creatin appearing in the urine was taken as an indication of the condition of the protein metabolism in that individual, since it was shown, by Benedict as well as by Cathcart himself, that creatin was a constant excretory product during inanition and hence purely of endogenous origin. As soon as food is supplied the creatin practically disappears from the urine. The hypothesis is put forward that the carbohydrates are absolutely essential for endocellular synthetic processes in connection with protein metabolism; that a resynthesis takes place in the tissues (muscles) and that the greater part of the muscle protein tissue nitrogen which is set free as the result of work does not appear in the urine but is reutilized; "further, that the foodstuff which plays the most important rôle in this resynthesis is carbohydrate. Fats apparently must undergo some change which requires time to produce." It is also found that with a carbohydrate diet, practically nitrogen- and fat-free, there is a fall in the ouput of urinary nitrogen; with a fat diet, practically nitrogen- and carbohydrate-free, there is a marked rise in the output of urinary nitrogen.

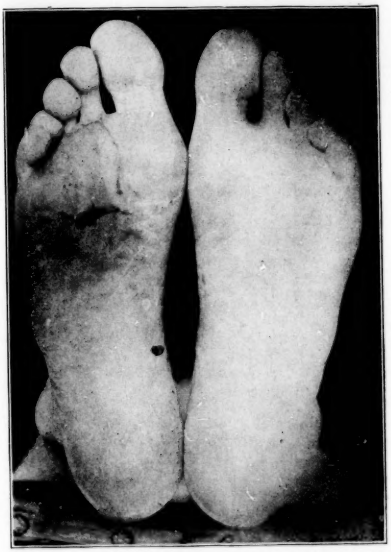
TWO CASES OF CREEPING ERUPTION

GEORGE H. R. GOSMAN, M.D.
Captain Medical Corps, U. S. Army
FORT BARRANCAS, FLA.

This condition of dermamyiasis is apparently rare; I can find but one good description, Hamburger's article in the *Journal of Cutaneous Diseases*, 1904. Since studying the two cases here reported, two others have been sent to me, so the apparent rarity of the condition may be due chiefly to its passing unrecognized.

It would seem very much more satisfactory if we could find the larvæ of this parasite, but everybody in this country seems to have failed to do so, though several Russian investigators state they have done so.

CASE 1.—The patient, Mrs. B., first had an attack of the eruption on the right ankle in September, 1908. This lasted two months. The patient went to a hospital, but did not understand what the disease was and apparently went away



Creeping eruption on plantar surfaces of feet. Case 2.

without any treatment. I did not see this, but according to the patient's description there was a very small elevated pimple like a mosquito bite, which itched badly, and from this a little red line extended and healing at back end as fast as it extended. The patient could distinctly feel and see the parasite's progress; it ran up and down the ankle four or five inches, came back again, then across. Some days it did not move and others it progressed an inch or two inches.

The second attack was about three months after the first. The eruption made its appearance on the dorsal surface of the left hand. I saw and followed the attack; it was characteristic in every respect according to the description in Hamburger's article. A raised red line 2 mm. in diameter and covered at varying intervals with small vesicles commenced in the middle of the back of hand and traveled around the back of the hand in loops, back and forth, and finally ended down between the forefinger and thumb and then apparently died. I failed to demonstrate any larvæ. The patient is now well.

I treated the second attack with various caustics, antiseptics and by incisions, but cannot say that the treatment had any

effect as the disease seemed to stop spontaneously. No idea can be formed as to how the patient became infected.

CASE 2.—The patient, Sergeant F. P., Eighth Band, C. A. C., first noticed small red pimple on middle of plantar surface, left foot, very itchy; from the pimple extended a small red line, serpentine in character; it seemed to extend about one inch in twenty-four hours. Two weeks later there was a similar condition on top of the fourth toe of the right foot, the line extending around the toe to the plantar surface of foot, running toward the heel for two and one-half inches, turning to the left about one and one-half inches, then doubling back on itself to the right aspect of foot. The patient could distinctly see and feel the progress of the parasite. The itching at night would keep the patient awake. These lines of eruption corresponded exactly to the description of creeping eruption as given by Hamburger in his article on the subject. Repeated examinations of small portions of skin and tissue failed to demonstrate the larvæ of the parasite, but in each instance stopped the progress of the disease at that point.

This case has been observed for about three weeks, and at present the eruption has practically disappeared. With the exception of a few scales along the line of the parasite's travel, the patient has entirely recovered. This case I believe to be specially interesting, because, so far as I am able to find out, it is the only case reported in which the eruption has occurred on two different parts of the patient at the same time.

Continuous observation on my part showed that this line increased about three-quarters of an inch in twenty-four hours. No idea can be formed as to how patient became infected.

MODIFIED TECHNIC IN RESECTION OF THE RECTUM *

J. RAWSON PENNINGTON, M.D.
Professor of Rectal Diseases, Chicago College of Medicine and Surgery and the Chicago Policlinic
CHICAGO

The accompanying schematic drawing will serve to illustrate a method of resecting the rectum employed by myself and Dr. Gronnerud in a special case. The growth for which the technic was employed extended

Fig. 1.—Mucocutaneous incision, corresponding to perineorrhaphy and extending from caruncle to caruncle, which was first made; also method of splitting the rectovaginal septum, a and b, and of elevating the posterior vaginal flap, a.

This illustration and those following are by Dr. Zan D. Klopper.

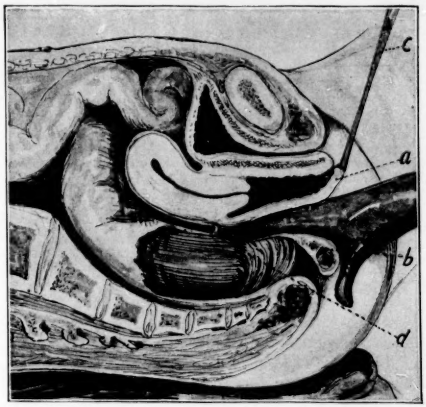


Fig. 2.—The rectovaginal septum, a and b, has been divided, the flap, a, raised, the rectum exposed and the index-finger carried up through the divided septum to the peritoneal reflection, d.

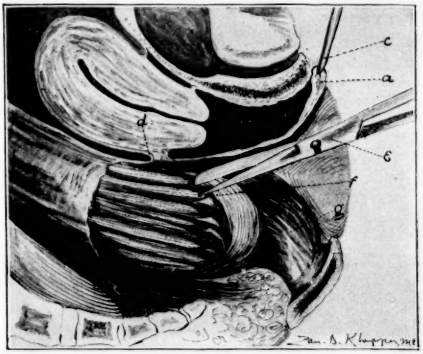


Fig. 3.—Dissecting fascia and levator ani muscle, i, from rectum, g.

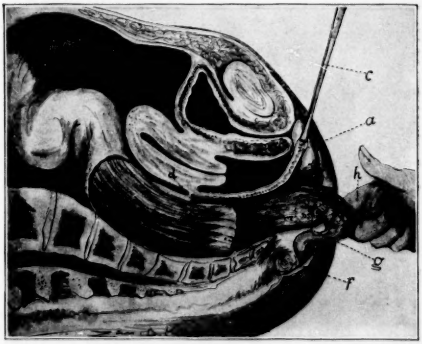


Fig. 4.—Lateral view. The rectum has been dissected from the cellular tissues, then pulled downward and outward with the finger, h, which has been passed between the rectum and coccyx. This exposes the tumor mass, g.

* Read at the Eleventh Annual Meeting of the American Proctologic Society, Atlantic City, June, 1909.

Fig. 5.—Front view of the same position as shown in Figure 4; l, line for distal incision.

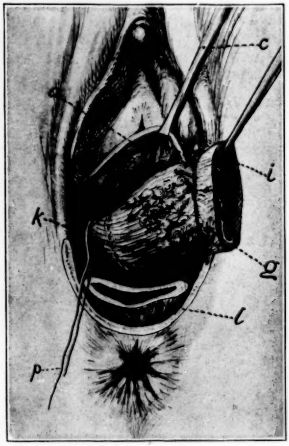


Fig. 6.—The distal incision has been made and the loosened end of the bowel containing the growth, g, elevated; l, is the anal canal; p, ligature for temporarily tying off the bowel; k, line for proximal incision.

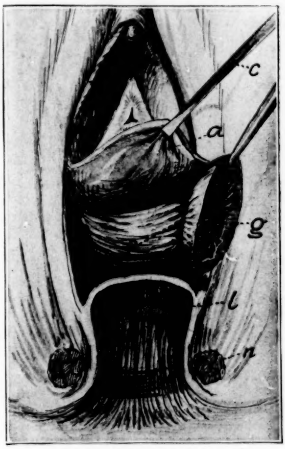


Fig. 7.—In this cut the tape, p, has been tied, the growth removed, and the sphincter, n, and the anal canal, l, incised and laid open.

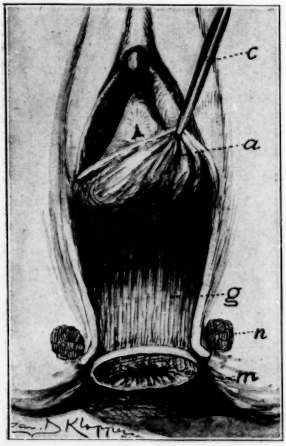


Fig. 8.—Rectum, g, adjusted in the divided anal canal preparatory to suturation.

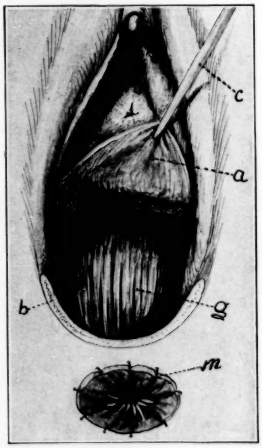


Fig. 9.—Rectum, g, being pulled through the everted and undivided canal and sutured externally at m, after which it retracts as shown in Figure 11.

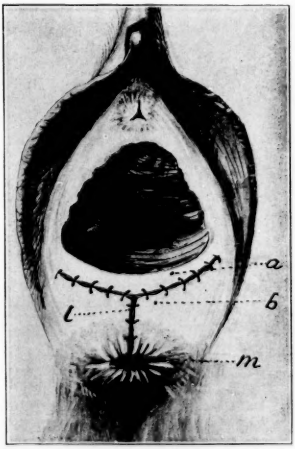


Fig. 10.—Lines of suturing in the completed operation, when the anal canal has been divided as shown in Figures 7 and 8.

upward from the proximal border of the levator ani muscle for about 2½ inches.

After removing the growth, as illustrated, we divided the anal canal and completed the operation as shown in Figures 7, 8 and 10. In some cases, however, I think it preferable to evert the anal canal, pull the upper part of the rectum or sigmoid, as the case may be, through this eversion and effect the end-to-end anastomosis on the outside and complete the operation as shown in Figures 9 and 11.

After the growth had been removed the incision was closed with buried catgut sutures and silkworm gut for

Fig. 11.—Line of suturing the rectovaginal septum in the completed operation when the anal canal has not been divided as shown in Figure 9.

the skin. The posterior vaginal flap, covering up, as it did, the field of operation, prevents the urine, vaginal and uterine secretions from coming in contact with the wound. Moreover, should it be found necessary, the reflection of peritoneum at d, in Figure 2, could be divided and the operation extended into the abdominal cavity.

The legends under the illustrations show the various steps in the operation.

103 State Street.

INTRACRANIAL NEURECTOMY OF THE SUPERIOR AND INFERIOR MAXILLARY NERVES FOR TIC DOULOUREUX

T. E. POTTER, M.D.
Professor of Principles and Practice of Surgery in Ensworth Medical College
ST. JOSEPH, MO.

History.—H. L. B., aged 68, applied for surgical treatment July 18. Patient gave a history of a most terrible tic douloureux of the left face and head from which he had suffered the most intense pain for ten years. He said further that he had had periodic attacks for thirty-five years, but the continuous pain had been present for nine or ten years. Until five years ago the area supplied by the ophthalmic division of the fifth nerve had been the one most affected, especially the infraorbital branch, and he had submitted to an operation in Omaha, where this nerve was divided. This gave no relief, but rather intensified the pain in the area supplied by the supratrochlear and supraorbital branches of the first division and the superior and inferior maxillary divisions. While the patient was in the hospital for three days previous to the operation he showed slight symptoms of dementia, at times wandering about in a semicomatose condition. He had an extremely sensitive sore on the left side of his nose, which had been present for a long time. During this preoperative period of three days he had two epileptic attacks, to which he had been subject ever since the pain had become so intense. He could not bear the touch of the hand on any part of the area supplied by the nerve, although I noticed that he was not very sensitive in the area of the infraorbital nerve supply which, as stated above, had been cut. He complained also of great soreness of the gums, so sensitive that at times he could not close his mouth and he rarely ate anything but liquid diet. Shaving of the left face and head caused great pain. Some conjunctivitis was present.

Operation.—On the fourth day after admission I performed Cushing's operation for removing the Gasserian ganglion. Instead of clipping the zygoma with bone forceps as he suggests I used the Gigli-Haertel saw, first making two small grooves underneath the zygoma near the helix and malar bones with a sharp pointed probe and drawing the flexible blade through the opening with a curved forcep. This gave a most satisfactory severance of the arch and there was absolutely no deformity as accompanying photographs (Figs. 1 and 2) show. Following the suggestion of Cushing and others I nipped away a small portion of the skull at the junction of the great wing of the sphenoid and the squamous portion of the temporal bone, with a chisel and in so doing ruptured the middle meningeal artery which lay very deeply embedded in the meningeal groove in the bone, being more superficial than I had anticipated. After enlarging the opening to about 1½ inches I tied the ruptured meningeal and was bothered with no more hemorrhage from this source. I want to emphasize the necessity of clipping the opening in the bone to include the crista infratemporalis and thus give

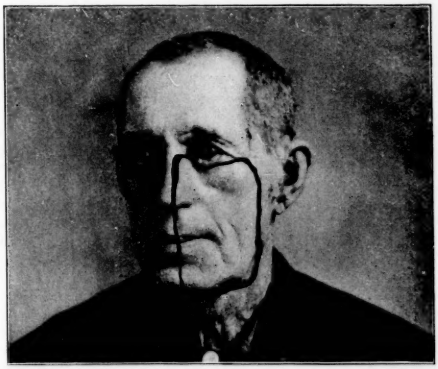


Fig. 1.—Neurectomy in tic douloureux; area of total surgical anesthesia at end of fourth week after operation.

a much clearer field for operative procedure; the lower the bone incision the better. After tying the artery I raised the temporal lobe with a flexible retractor about 1 inch in width and explored the cavity. Few of the accounts mention the almost absolute necessity of using a head light and many operators making the operation for the first time are apt to omit this most important detail. As all of the literature states, the hemorrhage is most annoying. Everything in the cavity bleeds. I tamped the bleeding points with very small sponges attached to the ends of straight forceps with little effect on the hemorrhage. I found that by pack-

ing the cavity tightly with dry gauze and leaving it for a minute or two I could control the hemorrhage entirely for the time being but this became very tedious work when such packing had to be replaced after the slightest manipulation of the intracranial structures. I examined the sheath of the dura which enclosed the ganglion and found that it was hard, almost like gristle and I was unable to separate the two layers with a blunt dissector. I am sure that this condition was pathologic for the consistency of the dura was much tougher, thicker, and more like gristle than the flexible fibrous dura. Unable to cope with the hemorrhage to the

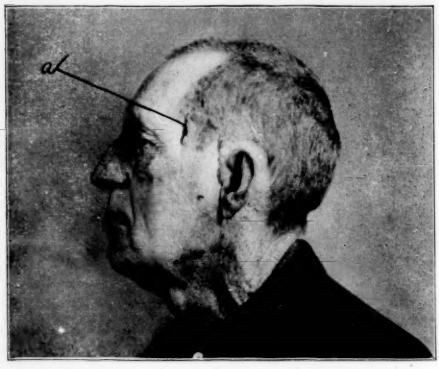


Fig. 2.—Four weeks after operation: a, gap where drainage was left.

extent of separating the sheath, dissecting out the ganglion and extirpating the sensory root, etc., I had to content myself with intracranial neurectomy of the superior and inferior maxillary nerves. I divided these at their entrance into the foramina rotundum and ovale and pushed the severed roots down through their exit through the foramina.

I then packed the cavity with iodoform gauze, sewed together the edges of the temporal muscle and fascia, leaving the opening in the skull to close naturally and tacked the edges of the skin together with fine linen leaving a small opening for the end of the iodoform packing. When the hemorrhage is so extensive I believe the packing left in the cavity for twenty-four hours serves to control it and can do no harm except lengthen the period of repair.

The operation lasted two and one-half hours. At the end of the second hour the patient's pulse became very weak, but he rallied well after hypodermoclysis with physiologic salt solution. Just before finishing, physiologic salt solution should be given per rectum to relieve the great thirst which follows long anesthesia. As a parenthesis I might add that operators will do well to give the saline enema just before discontinuing the anesthetic in all operations of any duration.

Postoperative History.—Patient rallied well and reported complete anesthesia of the left side of face and head in the area designated in Figure 1. There was some sensation in a small area supplied by the uncut supraorbital and supratrochlear nerves, but in spots there was sensory paralysis due no doubt to the handling of the ganglion and pulling of the ophthalmic divisions. I removed the packing at the end of the second day. The wound healed rapidly. For the first few days there was some discharge which gradually subsided. The wound had completely healed by the end of the second week except the small opening where the packing had been removed and this had granulated by the end of the fourth week. The surgical anesthesia at this period is shown in Figure 1, and Figure 2 shows the healed incision with a small scar and no deformity from severing the zygoma.

How long this surgical anesthesia will last I am at a loss to say, but even if the relief is only temporary the operation without removal of the ganglion is perfectly justifiable. Whether relief becomes permanent time alone will show. To remove the ganglion as Cushing suggests, i. e., dissect it away from the sheath, clip the three divisions and "evulse the sensory root," requires the greatest skill in technic, a skill which can only be acquired by performing the operation on several cadavers before attempting it on the living patient. In any case the hemorrhage may compel one to abandon complete extirpation of the ganglion and to be content with intracranial neurectomy of the superior and inferior maxillary nerves, an operation which in itself demands the most careful study and preparation before attempting. In my opinion, the Cushing operation is the most practicable for the entire removal of the ganglion, and his method is the best to follow even if the nerves alone are cut. The greatest difficulty after entering the cranial cavity is the separation of the sheath and the removal of the ganglion intact, but any skilled operator with technic perfected by work on the cadaver should be able to accomplish this when there is no pathology in the region of the cavum Meckelii.

Seventh and Edmond Streets.

A NEW INTERLOCKING INTESTINAL STITCH *

FRANK H. LAHEY, M.D.
Assistant Visiting Surgeon, Long Island Hospital
BOSTON

Up to the present time the interlocking intestinal sutures consist of an interlocking mattress suture described by Dr. Raymond Turck,[1] description of which is given below, and an interlocking suture described briefly by Dr. Frank Suggs,[2] U. S. A. This latter suture when completed is similar to the suture described for the first time in this article, but differs entirely in the manner in which it is inserted, requiring a needle with two eyes, also that the needle be rethreaded for each stitch by the operator and rethreaded in the wound, as one stitch already inserted remains in the needle. This is known to be a difficult task even with wet suture

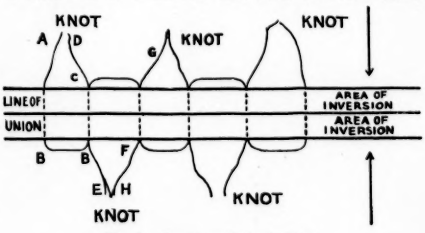


Fig. 1.—Suggs' method of suture.

material and intestinal needles under the best conditions. Furthermore, I wish to state in regard to these stitches that, although they are similar, after being inserted, they were originated independently of each other. Two months previous to the appearance of the description of Lieutenant Suggs' stitch I had demonstrated my stitch before the Advisory Committee of the Laboratory for

* From the Laboratory for Surgical Research, Harvard Medical School.

1. Turck, R.: Ann. Surg., December, 1908.
2. Suggs, F.: Letter, Ann. Surg., April, 1909.

Surgical Research at Harvard Medical School, and had been using the stitch on dogs for some time. I herewith reproduce Dr. Suggs' illustration (Fig. 1) and quote as follows from his article in order that the differences in the two methods may be made clear:

A needle is used with two eyes placed near together at the end. One eye, No. 1, is threaded with suture A, and the needle is passed through the two edges to be brought together, in the Lembert fashion, and out at B (Fig. 1). Here eye No. 2 is threaded with another suture and the two are carried back by the needle through the tissue as before, emerging at C. Unthread eye No. 1 and we have the free suture end D and also E that was left behind (long). Now rethread eye No. 1 with a new suture and pass the two again through the tissues to F, leaving behind as before the free end G. Unthread eye No. 2 leaving H free. Proceed thus to the end of the suture line.

Before tying A to D and E to H, etc., see that D has been passed from within outward beneath the loop at C and the same for E at B.

The Turck interlocking suture, as may be seen by the diagram, consists of an overlapped mattress suture, with the ends of the suture crossed when tied, so that they interlock. This stitch has the advantage of absolutely preventing any leakage between the stitches. Two of Dr. Turck's illustrations are included (Figs. 2 and 3) in order that his stitch may be illustrated, and that the advantage of any interlocking stitch over the simple or mattress suture may be shown.

While trying Dr. Turck's stitch on dogs, in the laboratory for Surgical Research, it occurred to me that an

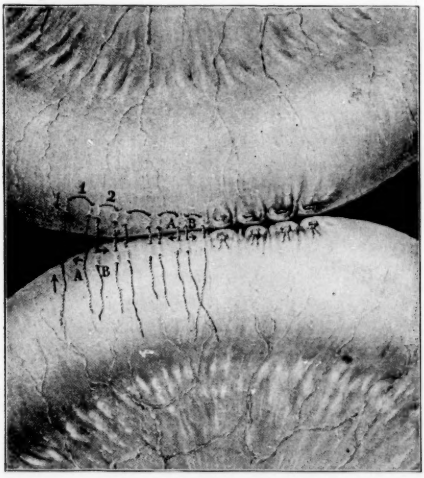


Fig. 2.—Halsted mattress sutures; illustrating the manner in which spaces between sutures are increased on tying the knots. This feature is exaggerated in the drawing to bring out the weak points more fully.

interlocking, continuous stitch might be devised. This idea resulted in the following suture, which is really interrupted when completed, but is applied as a continuous suture, since, if one cared to have the thread long enough, only one needle and one piece of thread need be used to complete the union in a lateral anastomosis, gastro-enterostomy or simple closure of an intestinal wound.

The ordinary intestinal needle is threaded with a good-sized piece of paraffined linen, or whatever suture material may be chosen, one end being pulled out so that it is slightly longer than the other; the needle is then inserted in the Lembert fashion, first through one piece of intestine and then through the other, so that, when pulled through, but for an end, the stitch consists of but one strand; the needle is again inserted as for the ordinary mattress suture and emerges on the side from which it started, but when the thread is pulled up the

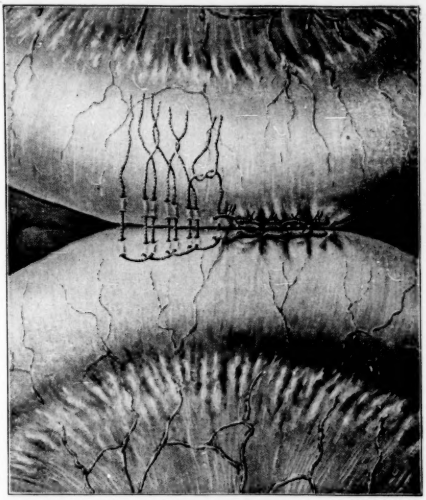


Fig. 3.—Turck interlocking suture with all knots on one side, showing manner of insertion of loops, and crossing of loose ends to form the chain. (After Turck.)

suture in the second set of holes contains two strands of thread, owing to the unevenness of the ends when the needle was threaded. There is now a simple mattress suture with one loose end and a double end within the needle, and another loose end on the opposite side of the stitch (Fig. 4); this latter loose end is now grasped with the fingers of the left hand (Fig. 4) and pulled gently, the needle being held in the fingers of the right hand so that the thread between the two hands is taut, with the result that the double strand of thread on the needle side of the wound separates and one strand bellies out close to the wound, the other remaining straight and taut as is shown in the illustration. Now if the assistant cuts the strand which bellies out (Fig. 4), it will be found to be the second end of the mattress suture and will leave one mattress suture and one-half of another already inserted. The loose end which has just been cut is now carried once around its mate (the uncut suture), thus providing for the lock when the next suture is applied. As the next step the needle is slid back along the thread a short distance, in order that, when the needle is again inserted for another mattress, the end will stick out so that it may be grasped as in the previous case. The second limb of the mattress is now made, and, as in the first case, there is a double strand in the stitch-holes. Again the loose end of the double strand is pulled on by the fingers of the left hand, the needle being held in the

right; the assistant cuts the thread which bellies out; again the suture is carried around its mate to be interlocked, and again the needle is slid back for the next stitch, and the process repeated until the circuit is completed.

There are two questions which one might naturally ask now, the principle of the stitch being understood. How is the last stitch interlocked with the first in finishing the circuit; and how could one go on if it became necessary owing to the stitch being used up or the needle broken, to take a new needle or a new thread? The same method applies in both cases.

In my first operations I used one long suture and found it very inconvenient, owing to the length of the thread to be pulled through the stitch holes, so I evolved the following technic, which allows a new stitch to be substituted for the old one at any time. When the thread is becoming so short that another suture cannot be inserted with it, it is carried through the second part of the mattress as in the foregoing, but instead of two strands being left in the last stitch-holes, the loose end is pulled through, so that there is only a single strand left (Fig. 5). The mattress suture now stands with its proximal end locked, but its distal end inserted with a single strand as a simple mattress suture would be. The fresh suture is now inserted beneath the loop, on the side opposite the free ends and crosses to the other side between the free ends, not being inserted in the bowel at all (Fig. 5). The free ends are now tied, and as this is done it includes the end of the new suture so that it is interlocked, and a fresh start is made as in the beginning, an end being left free every time until the operator comes back around the circuit to the first stitch. Now as to locking the last stitch with the first in completing the circuit, I have left this part of the description until the last in order that the reader might not be confused at the start in understanding the principle of the stitch.

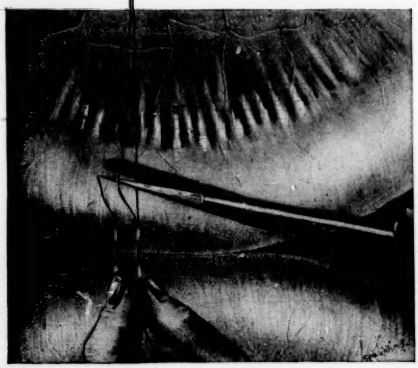


Fig. 4.—The two strands in the second set of stitch-holes; also showing the method of pulling on the tail thread, so that the strand forming the second limb of the mattress may be cut. This illustration also shows plainly how one mattress stitch and one-half of the next mattress stitch are inserted at one time. (After Turck.)

The joining of the last and the first stitch is provided for when the first stitch is inserted, by laying in a new suture as described above, with the exception that, instead of being locked to the distal limb of the first mattress suture inserted, it is locked to the proximal, as though one were about to stitch in both directions. Here it is left, being placed out of the way, while the suture continues around the posterior to the anterior line of stitches. Nearly always, as the anterior line of suture nears the point where it was begun, the thread will be found becoming too short and then, instead of inserting a new suture beneath the loop and between the free ends as just described, one goes to the suture left locked to the distal limb of the first stitch and proceeds to the end just dropped, making the final lock by passing the needle between the two free ends and out beneath the loop, thus completing the circuit, each stitch being interlocked with the other and each knot being tied first on one side and then on the other.

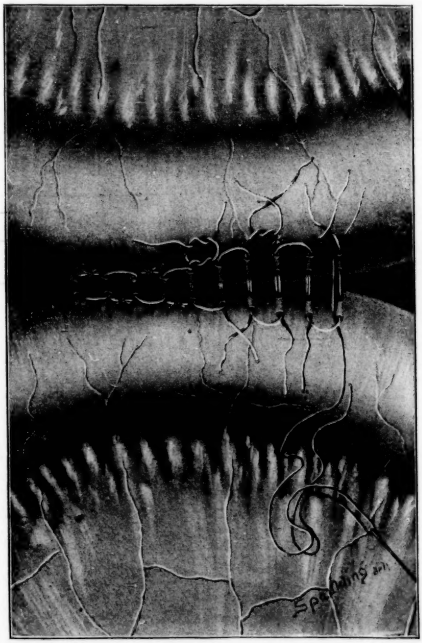


Fig. 5.—Manner in which the stitch locks in the stitch-holes; also stitches locked and tied. At the right end of suture is shown how a new suture is locked into the suture before it. (In the same manner the last suture is locked with the first in completing the circuit.)

If one chooses to use but one long thread for the whole circuit, the ends of the first suture must not be tied but left in the jaws of a hemostat, so that the last stitch, as the circuit is completed, may be interlocked with it.

One or two small points, which make the application of the stitch easier, may be added.

In doing an anastomosis of any two pieces of intestine, it will be found safer and easier to begin the stitch so that the corner between the anterior and posterior line of sutures be half turned, in order that when the end of the suture approaches the point where it was started, one does not have to sew deep down where the two walls of the bowel are held closely folded together by the posterior row of sutures. One should also be careful to avoid twists in the two strands of the suture, and these should all be taken out before the suture is inserted.

Care should also be taken not to leave the tail suture (that is, the suture to be grasped by the left hand and pulled back) any longer than is necessary to tie, because by doing so the length of the suture is sacrificed just so much, and a new suture is necessary so much sooner.

This suture has many advantages over the Turck suture. In the first place, it does not require as many stitches, because there is no overlapping, and that much distance is saved for every stitch. It may be inserted much more rapidly, because each stitch inserted really means one and one-half stitches inserted. It saves the extra stitch-hole which occurs in the overlap in the Turck stitch, the lock being all in one set of stitch-holes. Its pull in locking is one stitch on another, where they cross in the stitch-holes, and not on a piece of bowel which is within the grasp of the two stitches, as they lock in the Turck stitch. This seems to be a distinct advantage, for, if in the locking process there is much pull, there must be considerable pressure on the tissue included between the two stitches, if they are locked as in the Turck switch, by grasping a piece of tissue between them. While it is no advantage except to save one from confusing ends, one may tie each stitch as it is inserted, while in the Turck stitch the first stitch cannot be tied until the second one is put in.

Over Dr. Suggs' method this suture has the advantage of requiring no special needle, and of requiring no rethreading or unthreading. It also has the advantage of carrying through the bowel only the same thickness of suture material as would be carried through it in the use of any suture, that is, two strands, while in Dr. Suggs' method four strands must be carried through each time that the needle is inserted, since the needle is threaded with two separate sutures. It will also be found that, with a needle carrying two sutures on it, it is not easy to carry out the Lembert principle because of the difficulty of pulling four strands of suture material through the delicate wall of the bowel without ripping it.

I have applied this stitch to ten dogs, in some doing gastro-enterostomies and in some lateral anastomoses; I have inserted only one row of stitches, and in some of the lateral anastomoses the union has been made so near the knuckle of intestine that the strain on the anastomosis must have been very great. The dogs have all been killed and the specimens removed at the end of twelve days, and in all cases smooth union with no leakage has been found. There have been no adhesions from the free ends of the sutures, as they bury themselves by the infold caused by the mattress sutures.

I believe this suture to be the quickest, easiest and safest of all mattress or interlocking sutures.

I wish to express my thanks to Dr. Oliver Tinkham and Mr. Roy MacAusland, who have at various times acted as my assistants in these operations.

EPIDEMIC POLIOMYELITIS IN MONKEYS

THE ACTIVITY OF THE VIRUS *

SIMON FLEXNER, M.D., AND PAUL A. LEWIS, M.D.
NEW YORK

In our previous communications on experimental epidemic poliomyelitis[1] we described its successive transmission through two series of monkeys and discussed the nature of the virus that causes the disease. In the first place, we stated that by employing the intracerebral mode of inoculation of the virus the disease could be readily transmitted from monkey to monkey, possibly through an indefinite series, but that successive transmission could be accomplished also by means of inoculation into a large nerve (sciatic), into the circulation, the peritoneum and the subcutis. In the second place, we showed that the virus was filterable through a Berkefeld filter and withstood glycineration. In the present article we wish to describe certain additional facts that have been ascertained concerning the virus of epidemic poliomyelitis.

The virus was shown, by inoculation experiments, to be contained in the spinal cord and brain, but it was not known whether it was present also in the blood and other organs. We have produced the disease in a monkey by injecting an emulsion of the regional (axillary and inguinal) lymphatic glands, communicating with a nodule caused by a subcutaneous injection of the virus, that had induced paralysis. Two other monkeys were inoculated at the same time: one from the spinal cord and the other from the local subcutaneous lesion. The former developed paralysis and the latter is still well.

The degree of resistance of the virus is being studied. It has been determined that the spinal cord from a human case (Keefe) of poliomyelitis retains its virulence, apparently unimpaired, on being kept frozen at 2 to 4 C., in the Frigo apparatus, for a period of at least forty days; and when kept also for at least fifty days at a temperature about +4 C., during which time the latter specimen of spinal cord became slowly softened through autolysis and overgrown superficially with mold. These experiments have a bearing on the epidemiology of the disease and indicate that the cessation of the cases of the disease which occurs with the onset of cold weather does not depend on the destruction, although it may have to do with an effect on the multiplication, of the virus.

Moreover, the spinal cord of an affected monkey still transmits the disease, after having been suspended for at least seven days, over caustic potash, in a desiccator.

The activity of filtrates has been confirmed, and the possibility of their action being due to soluble toxic bodies and not to living organisms has been excluded by transferring the disease by means of the spinal cord obtained from the monkey that succumbed to a filtrate.

Can the virus be cultivated artificially? Portions of a bacteria-free filtrate were inoculated into bouillon containing 10 per cent. of rabbits' serum which had been rendered perfectly clear and sterile by being put through a Berkefeld filter; 1 c.c. of the filtrate was mixed with 9 c.c. of the bouillon and incubated. On the second day the fluid in the upper half of the tube was cloudy; the turbidity increased, and on the fourth day the fluid was used for inoculation into a monkey which developed

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. THE JOURNAL A. M. A., Nov. 13, p. 1639; Dec. 4, p. 1913; Dec. 18, p. 2095, 1909.

paralysis on the thirteenth day. A single loop of this turbid fluid did not set up turbidity in other tubes of the same medium.

A second series of cultivation tests, which is still in progress, has been carried out with a human ascitic-fluid bouillon made perfectly clear by filtration through Berkefeld filters. Perfectly clear filtrates, prepared from the spinal cord of affected monkeys, added to the ascitic-fluid bouillon, develop turbidity in the thermostat in twenty-four hours or less, and this turbid fluid inoculated into fresh clear tubes of the same medium causes them to become turbid. The clear filtrates do not produce turbidity, on incubation, in simple bouillon. None of the turbid fluids contained bacteria that could be seen under the microscope or cultivated in nutrient agar, and the dark-field microscope showed no definite bodies.

In a few instances in which parallel injections were made into the subcutaneous tissues and the brain, the monkeys inoculated in the first way developed paralysis and the other escaped infection.

Does an attack of epidemic poliomyelitis followed by recovery afford immunity to reinfection? Experimental poliomyelitis in monkeys is a very severe disease and, in our series, it has caused death in fully 40 per cent. of the inoculated animals that developed paralysis. When recovery occurs, residues of paralysis remain, and when death occurs or these animals are killed some weeks later, atrophy of the gray matter of the spinal cord, corresponding to the paralyzed limbs, is present. We have reinoculated several of the recovered monkeys and have noted in some instances failure of the virus to act while causing paralysis in the control monkeys. A single example will be given:

Monkey 45 was inoculated into the brain on Nov. 6, 1909; on November 13, tremulous and sick; on November 15, left leg was weak. Next day the leg was paralyzed. On November 24 general health was good, but paralysis persisted. On November 30 health was excellent except for paralysis. On this day the animal was reinoculated, together with two controls. Both of the latter became paralyzed, but the reinoculated animal has remained well.

Can the course of an intracerebral inoculation be modified by the simultaneous injection beneath the skin of a virus altered by heating? In seeking for facts relating to artificial protection from or resistance to infection, a considerable quantity of an emulsion of virus-containing spinal cord, which had been warmed to 55 or 57 C. for one hour, or to 60 C. for half an hour, was injected beneath the skin at the same time that a usual intracerebral injection of virus was given. The two monkeys employed in the experiment developed paralysis in the usual manner.

Brief mention should be made of other species of animals that have been employed for inoculation. Besides many rabbits and guinea-pigs, 1 horse, 2 calves, 3 goats, 3 pigs, 3 sheep, 6 rats, 6 mice, 6 dogs and 4 cats have had active virus introduced into the brain, but without causing any appreciable effect whatever. These animals have been under observation many weeks.

In the literature on epidemic poliomyelitis in human beings, reference is made to sensory cutaneous disturbances. We have found lesions similar to those present in the spinal cord and brain in the intervertebral ganglia, obtained from the paralyzed monkeys, in every instance in which we have looked for them.

105 East Sixty-second Street.

BARIUM CHLORID POISONING

E. GARD EDWARDS, M.D.
LA JUNTA, COLO.

History.—An employee of the Holly Sugar Company, Holly, Colo., feeling the need of a cathartic, visited the chemical laboratory of the company and swallowed what he supposed was one and one-half drams of Rochelle salts, but which in reality was barium chlorid. This was at 2 p. m. Inside of thirty minutes he was attacked with violent nausea and vomited twice a very large quantity, which he said was mostly undigested food, he having partaken of a heavy meal just prior to the ingestion of the supposed salts. Three bowel movements, large and loose, followed immediately. He then rode half a mile to his room and was again attacked with vomiting and purging of an intense character, so violent in fact that he made no attempt to keep count of the number of movements. At this time, about 3 p. m., he was seized with a violent pain in the left side, over the sigmoid flexure, and retraction of both testicles. This lasted only a few minutes, and as the patient was feeling easier, no physician was called. During this time the kidneys were very active, moving freely and often. At 5 p. m. the patient noticed a sudden inability to move his limbs, rapidly extending over his arms and trunk, and, at last being alarmed, summoned Dr. O. W. Swope of Holly. Dr. Swope examined him a few minutes later, finding his condition as follows:

Examination.—Pulse 38, forcible; respirations not counted but breathing labored and irregular; temperature, 95 2/5; pupils dilated; total paralysis extremities and trunk. Morphin gr. 1/20 and strychnin gr. 1/30 were administered, hypodermically. No history could be obtained pertaining to any old or recent disease, and no suspicion was entertained of his having taken any medicine other than the Rochelle salts which he had intended to take, until the proximity of the barium chlorid bottle and the exclusion of any acute pathologic condition causative of the symptoms, sugested the possibility of barium chlorid poisoning. As the patient was without a nurse, no record was kept of his condition during the night and the next morning, but the patient was constantly nauseated and the bowels moved often. By noon the next day, on his arrival at the hospital in this place, his condition was as follows: Pulse, 64; temperature, 95 3/5; respiration, 30, shallow and interrupted. Patient could swallow with difficulty; extreme nausea but no vomiting; no bowel movement for six hours; not a muscle of his body could be moved; control of sphincters was normal.

Treatment and Course of Case.—A stomach lavage of boracic acid solution was used to relieve the nausea, if possible, and a high enema, four ounces of epsom salts in one quart of water, given. The abdomen and spine were surrounded with hot water bags, strychnin, gr. 1/30, administered hypodermically, and the whites of two eggs in four ounces of water ordered given every two hours. At 3 p. m. temperature was 97 2/5, pulse 86, intermittent. Strychnin gr. 1/30 given hypodermically. At 7 p. m. temperature was 97 4/5, pulse 86, regular and full. At this time the stomach lavage was again employed and a high enema of four ounces of magnesium sulphate in one pint of water given; also strychnin, gr. 1/30. Urinalysis showed a specific gravity of 10:26 with albumin 0.1 per cent. At 9:30 p. m. the patient began to move the fingers; at 11 o'clock he could move the arms; at 11:30 he turned over in bed, and at 1:30 a. m. he was able to move any part of the body. At 6 a. m. he was given half an ounce of epsom salts by mouth and egg albumin was ordered for every hour during the day. At this time temperature was 98 and pulse 76. Temperature reached normal by noon of the same day. The following morning he was given a light breakfast, and as this was found to agree with him a full diet was given thereafter. The patient was then discharged.

It is questionable, of course, whether the late employment of such simple remedies as were used had any effect on the recovery of the patient or whether he was saved by the facts that the stomach was full of albuminous food at the time of the ingestion of the drug and that the latter was immediately rejected from the body by vomit-

ing and purging. Magnesium sulphate, by enema, as concentrated as possible, was used on account of its being the chemical antagonist of barium chlorid.

Shoemaker states that 2½ grains of barium chlorid have caused death when given in divided doses. The U. S. Dispensatory mentions two cases. In one, in which 60 grains were taken, the patient recovered; while in the other death followed the taking of 300 grains in five hours. I have been unable to find any other references in a number of available works on materia medica. I find that the weight of the one and one-half drams, by measure, taken by this patient, would be approximately 250 grains.

CHRONIC SUPPURATIVE PAROTITIS CAUSED BY THE STREPTOCOCCUS MUCOSUS CAPSULATUS

REPORT OF A CASE

C. H. McKENNA, M.D., AND D. J. DAVIS, M.D.
Surgeon and Pathologist, respectively, to St. Joseph's Hospital
CHICAGO

SURGICAL REPORT BY DR. McKENNA

The tumor in this case resembled, in contour, firmness and close connection with the ramus of the jaw, a sarcoma, but a positive diagnosis could not be made without the removal of a piece of the tissue for microscopic examination. In doing this a small amount of pus escaped from the depth of the gland and was sent to the laboratory for examination.

History.—Miss T. L. reported at the hospital complaining of a swelling in the region of the right parotid gland accompanied by severe pain in opening her mouth. The swelling had appeared three days previously (May 22, 1909). The family and personal history are negative except for the following points:

The patient had had measles and diphtheria. About twelve years ago an abscess had appeared on the right side of the face in the same region as the swelling mentioned above. This had been opened and drained by the family doctor. Since that time exposure to cold caused the patient pain and swelling in the same region and would last only a short time and then recede completely. The patient was always troubled with boils and carbuncles. The patient lives at home and works downtown as a clerk. She gets very little exercise, arises early and retires early; she does not eat much and very often skips her meals. She uses tea and coffee moderately.

Examination.—Negative except the above-mentioned swelling, which was a solid, spherical tumor situated in front of the ear and extending over the upper ramus of the jaw on the right side and so intimately associated with the jaw-bone that for a time it was thought that there might be a connection between the two. The patient was treated at the hospital for one week before being operated on, during which time an attempt was made to reduce the swelling by hot compresses frequently applied. The mass was so persistent that it was decided that it should be opened and a piece removed for examination. The report of this examination by Dr. Davis follows. The wound was drained for one week and the patient made an uneventful recovery.

BACTERIOLOGIC REPORT BY DR. DAVIS

In smears obtained from the operation wound Gram-positive diplococci and short chains were found in small numbers outside the many polymorphonuclear cells present. Cultures made on plain media give a pure growth of an organism presenting all the characteristic features of the *Streptococcus mucosus capsulatus*. It was Gram-positive, non-motile, arranged in pairs or in short chains and possessed a definite capsule. The growth in twenty-four hours on blood-agar slants was raised, moist, profuse and mucoid in character, and when left in the incubator forty-eight hours the slimy mass largely disappeared, leaving a smooth shining surface. On blood-agar plates about the colonies was a distinct greenish halo. This organism was practically non-phagocytable *in vitro* by human leucocytes plus human serum, and three small loops in 1 c.c. of salt solution injected into the peritoneal cavity of a guinea-pig caused death in forty-eight hours. The organism was recovered in pure culture from the peritoneal serofibrinous exudate and the heart blood of the animal.

Pieces of the parotid gland from the region of the abscess were sectioned and presented evidence of a marked chronic inflammatory reaction. The gland tissue was infiltrated with large numbers of round cells and a few polymorphonuclear cells and considerable increase of the connective tissue in places occurred.

Encapsulated streptococci have been described by numerous observers. Howard and Perkins[1] were among the first to describe this organism and it was they who first called it *Streptococcus mucosus*. Schottmüller,[2] Newmann,[3] Richardson,[4] and Longcope[5] have all described organisms which probably are identical with this streptococcus. Buerger[6] has recently given a good review of the subject.

This organism not infrequently occurs in the sputum in various throat and lung infections, especially croupous pneumonia, and is commonly found in ear discharges in otitis media, which explains its relative frequency as the cause of acute meningitis. Of seven cases of infection with this organism reported by Schottmüller, three were acute meningitis. I have isolated it in pure culture in a case of meningitis following otitis media and have cultivated it from the throat in cases of acute articular rheumatism, lobar pneumonia, "grippe," and from the ear discharge in otitis media. Longcope obtained it from an abscess in the breast wall and from the blood in a case of lobar pneumonia, and Howard and Perkins from an ovarian abscess and the organs post-mortem. It evidently may localize in various parts of the body, though preferably it localizes in the respiratory tract or its accessory structures. I have not been able to find reported other cases of chronic suppurative parotitis due to this organism.

100 State Street—839 Lakeside Place.

PERFORATING ULCER OF THE SIGMOID—A SEQUEL TO MEASLES

J. C. MURPHY, M.D.
ST. LOUIS

Involvement of the intestinal tract in measles is by no means an unusual complication, diarrhea and dysentery being occasionally seen. In a careful review of the available literature found in the library of the New York Academy of Medicine, I failed to find any record of intestinal perforation in this disease; but it is logical to presume that it could occur. Various authors state that post-mortem findings have shown Peyer's patches to present the same ulcerated condition found in typhoid fever. Dawson Williams,* of London, in speaking of gastrointestinal complications of measles, mentions a case in which dysentery occurred and post-mortem examination showed intense enterocolitis of sigmoid and rectum, with ulceration identical with that seen in true dysentery.

1. Howard and Perkins: Jour. Med. Research, 1901, vi, 1[illegible]
2. Schottmüller: Med. Wchnschr., 1903, 1, 909.
3. Newmann: Centralbl. f. Bakteriol., 1904, xxxvii, 48.
4. Richardson: Jour. Boston Soc. Med. Sc., 1900-01, v, 499.
5. Longcope: Univ. Penn. Med. Bull., 1902, xv, 51.
6. Buerger: Centralbl. f. Bakteriol., 1906, xli, 314.

* Williams, Dawson: Twentieth Century Practice of Medicine, xiv, 145.

REPORT OF CASE

History.—A. S., farmer boy, aged 14, one of several children, had had good health until he became sick with measles in February, 1909. The attack was of unusual severity with marked gastrointestinal complications, dysentery persisting after the usual symptoms had disappeared. The dysentery ultimately ceased and was soon followed by symptoms consisting of pain, increase in size of abdomen, nausea, fever, and constipation, which seemed to the observer to indicate intestinal obstruction. I was called by the attendant on March 5 to operate for a supposed intestinal obstruction.

Examination.—Patient's temperature was 104, pulse 120; appearance indicated sepsis; abdomen was enormously distended; there was complete dulness from one iliac crest to the other, and from umbilicus to pubes.

The examination did not suggest intestinal obstruction to me. The boy's condition being critical and the nearest hospital sixty miles away, I undertook the operation amid very dirty surroundings, two other children being sick of measles in the same house, which contained three small rooms.

Operation.—After such preparations as were possible, the boy was placed on the kitchen table, and after the usual toilet of the operative field the abdomen was opened by a median incision, which was followed by the discharge of huge quantities of pus and fecal matter. The abscess cavity, however, was well walled off. After cleansing the cavity a ragged hole was seen in the sigmoid, large enough to admit two fingers. The opening in the bowel was surrounded by an indurated area, such as one finds in ulcer. On account of the considerable destruction of tissue, and for fear of disturbing the adhesions, no effort was made to suture the bowel. The cavity was wiped clean and drainage established.

Postoperative History.—The patient was put to bed in good condition and placed in the Fowler position. The subsequent history was uneventful, the bowels moving normally on the second day. The after-treatment was left to the attending physician. I saw this boy about three weeks after the operation, the abdominal wound was practically healed, bowels moving normally and general health good. It is now over eight months since the operation; the patient is in perfect health with no symptoms of cicatricial stricture of bowel which I feared might occur. The apparent rarity of bowel perforation in measles prompts the report of this case.

4263 Morgan Street.

DIVERTICULUM OF THE STOMACH

JOHN M. LITTLE, M.D.
BOSTON

In a clinic characterized by a large percentage of digestive disturbances, I have found it easy to distinguish a certain number in which the symptoms were due to gastric or duodenal ulcer. This statement I make, because in all cases in which operation has been performed on this diagnosis, I have demonstrated the ulcer on the table. The following case is reported because of the definiteness and simplicity of the symptoms, their difference from the symptoms of the more usual conditions, and their complete explanation by the pathologic findings at operation. These last may be briefly described as narrowing of the pylorus and diverticulum of the stomach caused by stretching of its wall, the whole being due to the scar of an old ulcer completely healed.

History.—A. B., aged 56, fisherman (Hosp. No. 457), was subject to indigestion for some years but two years ago began to have severe pains in epigastrium after eating. At times he would vomit, very bitter substance; and the vomiting gave immediate relief. Otherwise the pain would last perhaps from fifteen minutes to half an hour. Since then he has eaten only liquid food. The eating of anything solid always causes this pain, which is unbearable. He has always been well and healthy in every other way.

Physical Examination.—A well-developed and nourished healthy looking man. Physical examination shows nothing abnormal. He shows the epigastrium to be the seat of the pain and says there is tenderness there at the time the pain is there. There is now no tenderness on deep pressure.

Operation.—Oct. 18, 1909, after the usual preparation, the patient was operated on under ether anesthesia. The stomach, the capacity of which was normal, was washed out on the table. A four-inch incision was made in midline between ensiform and umbilicus. With the exception of the following condition, the abdominal contents were normal. There was a whitish-looking scar running from the upper part of pylorus downwards and to the left along the anterior stomach wall. To the right of this was what I took at first to be the duodenum but which turned out to be a diverticulum of dilated stomach wall, lying in front of the duodenum and capable of holding about six ounces. There were no adhesions or palpable thickenings of the walls. The stomach was opened by an inch incision on its anterior aspect. The finger carried forward, toward the pylorus, entered a ring of tissue which just admitted it. Feeling around, the finger entered another ring, which just barely admitted it. This latter turned out to be the pylorus lying behind and above the former, which was the opening into the diverticulum. Inspection showed no ulceration of the mucous membrane, which looked normal. With a finger in the pylorus, an incision an inch and a half long was made in the pylorus extending (longitudinally to axis of stomach) from the duodenum across the pylorus into the diverticulum. This incision was then sewed up transversely to the axis of the stomach. This pyloroplasty caused, at the same time, enlargement of the pylorus and drainage of the diverticulum. The hole in the anterior wall was then closed in like manner by an over-and-over stitch through all layers, followed by a continuous Lembert suture. The abdominal wall was closed by layers.

Recovery was uneventful. The patient has been on ordinary diet and has had no symptom since.

317 Dartmouth Street.

APPENDICITIS DUE TO THREADWORMS

T. H. CULHANE, M.D.
ROCKFORD, ILL.

The patient, a married woman aged about 21, suffered with intense pain at McBurney's point, together with intense nausea. She had no desire for food and, when food was taken, it was immediately rejected. On Sept. 8, 1909, about two weeks after I first saw the patient, I operated, removing the diseased appendix. The contents of the appendix were forcibly expelled on my finger, and live worms could be seen crawling therein. The appendix contained about eighteen threadworms. The mucosa of the appendix was congested and thickened, and contained many punctate hemorrhagic spots. The patient made a good recovery.

1025 South Main Street.

APLASIA OF THE UTERUS

CHARLES L. PATTON, M.D.
SPRINGFIELD, ILL.

Several years ago I reported[1] a curious malformation of the internal genitalia in a child, classifying the malformation as either pseudohermophrodismus masculinus externus or bilateral inguinal hernia of the ovaries with aplasia of the uterus. Since reporting this case I have seen two other cases in which I was unable to detect a uterus. Neither of these presented the condition found in the labia majora in the reported case, but both gave evidence of a marked interference with the development of the internal organs of generation.

1. Patton, C. L.: Case of Malformation of the Internal Genitals with the Reproductive Glands in the Labia Majora, Am. Jour. Obst., October, 1904.

Second Case.—An Italian woman, aged 34, married, housewife, was seen by me with another physician, March 7, 1906. Her family history was without interest, so far as we were able to determine, for it was difficult to converse with her, since she spoke no English and her husband was, at best, a poor interpreter. The patient sought medical advice on account of a pain in the right side and to ascertain the reason for never having menstruated.

She stated that every four weeks she felt tired and complained of feeling sore all over. She had severe backache at this time. At 15 she had a hemorrhage from the lungs. There was at the time of examination no evidence of lung involvement. The patient's temperature was 99½. On abdominal palpation nothing was elicited except a slight tenderness on the right side in the region of the appendix. The external genitals, to all appearances, were perfectly normal for one of her age. The vagina was small in circumference and terminated in a blind pouch two inches from the introitus. No cervix could be detected by palpation or speculum examination. Vaginal and rectal examination revealed no uterus. It was impossible to outline the ovaries. The inguinal canals were free. The patient's habit, appearance, voice and breasts were distinctly feminine.

Third Case.—Mrs. A. L., referred March 18, 1909; married, white, aged 32. The family history is negative. The patient's physician states that the patient suffered from tuberculosis four years ago but that she has since made an apparent recovery. At the time of this illness her weight fell to 109 pounds. She had "spasms" when a young child but was not troubled with this difficulty subsequent to that time until last January, during which month she had three attacks. In each instance these attacks came on at night and occurred during sleep. She cried out, bit her tongue, foamed at the mouth, spit blood and had general convulsions. The actual spasm lasted but a short time, after which she went into a deep sleep from which it was difficult to arouse her. She states that she knew nothing of these attacks until told of them the next morning.

The patient had been married eight years and has been very anxious to have children but she has never been pregnant. Her menstruation first appeared at the age of 12 and has been regular and of the four-week type. She flows for four or five days, without pain, and passes a normal amount of menstrual discharge. She passes small clots occasionally. She has had a constant leucorrhea for years. It is small in amount, without odor and is thin and yellow for the first few days following menstruation, when it becomes thick and sticky.

The patient consulted her physician to engage him for her confinement. She states that she has not ceased to menstruate but that she has become progressively larger and that she has felt fetal movements. She has had no nausea or vomiting but she has been nervous and has had "abnormal cravings." She thinks that she is about six months pregnant and she has her layette complete.

The patient is of medium build, normal in appearance and has good musculature and a fair amount of panniculus. She weighs 149 pounds.

The abdomen is symmetrically distended from the pubes to two inches above the umbilicus. Palpation reveals no tumor and the abdomen is everywhere tympanitic. The abdominal walls are soft and easily depressed with the palpating hand. The breasts are pigmented and the follicles slightly enlarged. The chest is negative.

The vulva is entirely normal for a woman of her age and the pubes are covered with hair as in a normal woman. The hymen is ruptured but the perineum is intact. There is no bluish tinge to the vagina.

The vagina is shallow but of normal circumference and the examining finger comes in contact with the vault without encountering a cervix. No uterus can be detected by bimanual examination through the vagina or rectum. Both ovaries are easily palpated and are apparently normal in size and position. Speculum examination reveals no cervix, but at the vault where the cervix should be located are two small depressions that have an appearance similar to that of the ureteral openings as viewed through a cystoscope. A filiform probe can be passed through these openings for about two inches. The tissue surrounding these openings differs in no way from the mucous membrane of the rest of the vaginal canal.

These malformations have, for many years, been a subject of interest to the embryologist and to the clinician. Many classifications have been made, but none, I think, is more satisfactory or less cumbersome than that of Müller, which I give here briefly:

1. Defectus uteri.
2. Uterus rudimentarius.
3. Defectus cervicis uteri et cervix uteri rudimentaria.
4. Uterus unicornis.
5. Uterus unicornis cum cornu rudimentaria.
6. Uterus bicornia.
7. Uterus bilocularis.
8. Uterus didelphys.
9. Hypoplasia uteri.
10. Slight developmental anomalies of the uterus relating to position, abnormal plications, etc.

Many of the cases reported in literature as cases of "defectus uteri" or complete absence of the uterus are wrongly classified. This condition is rarely encountered in the living, although it is not uncommon in monsters. Other gross defects in the organism are usually found in connection with this malformation. Many of the cases reported as defectus uteri cannot be accepted because no autopsy was performed and the condition was diagnosticated by physical examination of the patient alone. In these cases one may be unable to palpate a uterus, but in the vast majority there are masses of microscopic or macroscopic uterine tissue found at autopsy, occupying the region that the uterus should occupy. These cases should be classified under the heading of "uterus rudimentarius." Many grades of this condition may be seen, varying from microscopic bits of uterine tissue on the posterior surface of the bladder to macroscopic masses resembling in shape the normal uterus, but very much reduced in size. In all probability Cases 1 and 2, reported above, belong to this class.

In cases of "defectus cervicis uteri" the entire cervix is absent or is represented by a narrow fibrous band replacing the normal structure. The vagina is normally developed or there may be an atresia of the upper portion. The uterus is represented by a cord or band of tissue or in some other way shows a marked error in development. The third case of this series certainly comes under this division, although I have been unable to find a similar case in literature.

I report this case not for the interest attached to it alone, but that it may be on record for others who are interested in the subject of uterine malformations.

The third case appears to me to be unique for the following reasons:

1. Clinically there is an aplasia of the uterus.
2. There is an entire absence of the cervix.
3. The ovaries are apparently normal in size and position.
4. Menstruation has been normal in amount, regular and free from pain, despite the gross defect in development of the uterus.
5. The tubes, or the bodies of an extremely small didelphic uterus, open directly, by separate openings, into the vagina.
6. There is a pseudocyesis.

Cases coming under the remaining heads of Müller's classification are more frequently met and more nearly approach the normal.

Suite 25, Illinois National Bank Building.

MENTHOL TREATMENT OF SCREW-WORM

B. C. DAVIES, M.D.
MONROVIA, CAL.

While it is true that cases of screw-worm from the fly *Compsomyia macellaria* are rare in the United States, still they do exist and are exceedingly resistant to the treatment outlined in the text-books.

The infection is invariably complicated by the pre-existence of an atrophic rhinitis or an ulcerated condition, permitting the larva—screw-worm—to burrow, and thus escape the action of most solutions used to dislodge and destroy it.

Chloroform (in solutions used as a spray and inhalant) is satisfactory and sure for the worms that are hatched and lying in the open, but it does not penetrate sufficiently, neither is its action prolonged enough to destroy the worm, after it has burrowed into the diseased tissues from an atrophic rhinitis, or the egg while it is being hatched.

A thorough curettage of the nasal passages may be done under general anesthetic, but at considerable risk of rupturing blood-vessels and thus affording opportunity for entrance of an embolus or spreading infection to surrounding cavities, in some cases producing death.

After struggling vainly with chloroform in varying solutions—from 20 per cent. to pure chloroform—and thus relieving the patient of some two hundred worms in several treatments, I discovered that the number of worms still increased daily. I therefore realized that I was but collecting the day's hatch, as no worms were visible after using a chloroform spray and picking out the resultant dead ones. Inspired by a recent article on the eradication of the hookworm by the use of menthol, I therefore instituted a treatment with sprays of menthol. Preceding the menthol, peroxid of hydrogen was sprayed into the nose two or three times, the patient blowing his nose freely between applications. Then a 20 per cent. solution of menthol was sprayed into the nostrils very thoroughly under twenty pounds' pressure. Usually within half an hour numbers of the worms were expelled, and in three days, after spraying twice daily, they ceased altogether and showed no return.

Weak solutions were first used but proved useless. The nasal tissue that is in condition to permit growth of this parasite has lost all sense of pain, thus permitting the use of strong solutions.

Therapeutics

[EDITOR'S NOTE: The following is the first of a series of five articles by Professor Osborne on the revision of the Pharmacopeia. These special articles will take the place of the regular therapeutic matter, which will be resumed on the completion of this series.]

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

OLIVER T. OSBORNE, M.D.
Professor of Therapeutics, Yale Medical School
NEW HAVEN, CONN.

1. Let the new Pharmacopeia contain such drugs only as are of positive therapeutic value.

2. When a drug or preparation of a drug is prescribed that is not official in the Pharmacopeia of 1910, let it be officially declared that the standard of purity and the method of making preparations not recognized in the Pharmacopeia of 1910 be the standard set and the methods of preparation ordered in the last Pharmacopeia in which the preparation was recognized.

3. Let it contain such new drugs as have been proved of therapeutic value.

4. Let there be issued a supplement to the Pharmacopeia, in 1915, which shall make official such new drugs as have been proved to be of therapeutic value during the years of 1910-1915.

5. Let the 1910 Pharmacopeia give the most simple titles possible to all new drugs, especially to the synthetic drugs. If it is considered impossible, or inadvisable, to make an official title of a drug simple, an official abbreviation should follow the name of the drug.

6. Let the 1910 Pharmacopeia give official approval to only the best of the preparations of the official Galenic drugs, and not officialize the little used and useless preparations of these drugs.

7. Let the 1910 Pharmacopeia not give official approval of all of the known salts (of iron and mercury, for instance), but officialize only the best. (The Committee on Revision can just as well decide this question as it can decide the new drugs that are worthy of a place in the United States Pharmacopeia, or as it can decide the strength a tincture shall have, and certainly the tinctures were radically changed in the 1900 U. S. P., whether everyone was pleased or not.)

8. Let the average adult dose appear after each drug and each preparation of it, not the range of dose, i. e., minimum to maximum, as there is no exact under or over limit of dose. The dose is enough to accomplish the object aimed at by the prescriber, and all he cares to know is the average dose.

9. As the U. S. P. gives the official titles of drugs in Latin, it should also give the genitive after each title. This would be of especial value in teaching the correct writing of prescriptions. It is not always easy to determine the declension to which a Latin noun belongs, or whether it may not be indeclinable.

10. Let the official preparations of a drug be enumerated under the title of that drug.

DUSTING POWDERS

The dusting powders may be named as acetanilid combinations, bismuth preparations, boric acid alone or combined, various preparations containing iodin in some form, and the more simple powders, such as lycopodium, talcum, zinc oxid and zinc stearate.

It would seem hardly necessary, with all of the powders that are official, to prescribe, for a dressing, one that is not official. But even among physicians there is a tendency to appeal to the unknown and the mysterious, hoping that a lauded proprietary powder will heal a wound more quickly than something the ingredients of which is known. This is probably the reason that so many nostrum powders are prescribed. It should be remembered that dermatol is official under the name of bismuth subgalate, and that aristol is official under the name of thymol iodid (thymolis iodidum). The following simple combination is probably as good a drying antiseptic powder as can be ordered:

R.	gm.	
Acidi salicylici	1	gr. xx
Acidi borici	49	or
Talci	50	āā, ℥ii

M. et Sig.: Use externally as a dusting powder or dressing.

It should be declared, although by some surgeons it will be considered a heresy, that the intensely obnoxious

iodoform dressing is unnecessary for the healing of wounds or the cure of disease. It will not kill germs, although it may, like any other dry dressing, inhibit their growth or development. It is a good deal like the zodiacal cross on the tail of the ℞ in recipe, and is used after an operation as an invocation to the gods that the wound will speedily heal. To stigmatize with the odor of iodoform a walking patient is beyond excuse; almost permanently to perfume a private residence with iodoform seems hard to defend; to iodoformize a hospital permanently seems unnecessary.

The only excuse for the use of iodoform seems to be in an oil emulsion as an injection into tuberculous joints or tendons. In such use there is no obnoxious odor exuded or wafted about by the patient.

To have a physician's office, his clothing, his operating bag, and his obstetric bag reek with iodoform seems, in this advanced age of estheticism, indefensible.

There are many inodorous iodin synthetic dusting powders. If any one has been found by a large number of physicians and surgeons to be an improvement on the official thymol iodid (aristol) they should report such to the Committee on Revision of the Pharmacopeia, asking that the committee consider making it official in the Pharmacopeia of 1910.

OINTMENTS

The Pharmacopeia and National Formulary make official 60 cerates, ointments, salves, mulls, petroleums and collodions. A physician should be able to select from this large mass of official greases those that he desired to use, without recourse to proprietary articles. The United States Pharmacopeia alone contains 6 cerates and 24 ointments. As our criticism is now on the United States Pharmacopeia, which is about to be revised, the question of whether or not all these cerates and ointments are needed, in our aim to reduce the bulk of the Pharmacopeia to scientific and sensible utility, should be discussed. It is doubtful if the acetate of lead cerate, the resin cerate, and the compound resin cerate are needed. If they are but little used by physicians, surgeons or specialists, they should be omitted from the next Pharmacopeia.

There would seem to be no question that there are too many official ointments. The stramonium ointment is so similar in its action to the belladonna ointment that it might well be omitted.

If there is any reason why the ointment of galls is better than the ointment of tannic acid, it must be because it is milder. It would seem, then, that the tannic acid ointment could be diluted by the prescriber to meet the astringency desired, and the ointment of galls omitted from the Pharmacopeia.

There are six ointments of mercury. It surely does not seem that all are needed. The official unguentum hydrargyri dilutum is superfluous. The official unguentum hydrargyri could be ordered diluted to meet any strength the physician desired. The red oxid of mercury ointment will doubtless act, or could be diluted to act, similarly to the yellow oxid of mercury ointment. Or the yellow oxid of mercury ointment could be strengthened by prescription to suit the individual desires. Both such similar preparations seem unnecessary. The nitrate of mercury ointment is probably very rarely prescribed, and might well be omitted from the Pharmacopeia.

It has never been shown that potassium iodid ointment could have any activity. If iodin in ointment is desired, the official unguentum iodi is sufficient.

Iodoform ointment should certainly be omitted from the next Pharmacopeia. If iodoform is needed it may be prescribed in any strength, in ointment, which the surgeon desires. To officialize the ointment is superfluous.

The veratrin ointment should be omitted from the Pharmacopeia. It is dangerous to use and should not be made official.

The zinc stearate ointment seems unnecessary. The object of producing stearate of zinc is to have a powder that is oily and that will adhere to the skin. To put this powder into an official ointment would seem to be absurd. It can have no action different from the zinc oxid ointment. This ointment should, then, be omitted from the next Pharmacopeia.

ASTRINGENTS

All the vegetable astringents contain tannic acid, and the cause of the astringency is tannic acid. The only possible advantage of a nauseating vegetable astringent over tannic acid itself is that, as it contains resinous substances, it gradually gives off its tannic acid through a considerable length of the intestine; on the other hand, tannic acid, as such, forms tannates in the stomach and high up in the intestine, and the astringency is then lost to the remainder of the intestine. This advantage of the tannic-acid-containing vegetable drugs is equalled and surpassed by a number of non-official tannic acid preparations (and the Committee on Revision must decide which are best and which should receive recognition in the next Pharmacopeia), all of which have the advantage of not breaking up or being dissolved in acid media, therefore not causing the irritation to the stomach that tannic acid does, but slowly break up and dissolve in the alkaline media of the intestines. These preparations are much more elegant, pleasanter and easier to take, cause no disturbance of the stomach, and act more successfully as astringents in the intestine than do gambir (catechu), krameria (rhatany), kino, hemotoxylon, geranium, rubus (blackberry), quecous (white oak bark) and rhus glabra (sumach fruit). All of these named drugs and their preparations make about 26 articles that could well be left out of the new Pharmacopeia. This would decrease its bulk just so much and remove preparations that are absolutely not needed. Also, not all of the preparations of witch hazel are needed.

Gallic acid does not have the local astringent action of tannic acid; therefore, there is no advantage in using gallic acid instead of tannic acid when local astringency is desired. To expect tannic acid in any form whatsoever, or gallic acid in any form whatsoever, administered by the gastrointestinal canal, to act as an astringent after absorption, to stop either profuse secretion or internal hemorrhage, is to expect what may happen in the sequence of events, but will not happen from the action of these remedies. In other words, there is probably no internal astringent action from the small part of these drugs that may enter the blood. If it is thought that a tannic acid preparation will have such internal effect, gallic acid should be administered, as the part of tannic acid that is absorbed is generally absorbed as a gallate. A diminution in albuminuria after the administration of gallic acid, which sometimes seems to occur, is often a mistaken observation from some chemical condition of the urine not allowing the albumin to be precipitated by heat. The cold nitric acid test will disillusionize the supposed diminution of albumin after the administration of this drug.

(*To be continued*)

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[*For other information see second page following reading matter*]

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DEATHS OF PHYSICIANS IN 1909

During 1909 the deaths of 2,199 physicians in the United States and Canada were noted in THE JOURNAL. On the estimate of 135,000 practitioners, this is equivalent to a death rate of 16.29 per 1,000. The annual death rates as recorded in the previous seven years were as follows: 1908, 17.39; 1907, 16.1; 1906, 17.2; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. For the last six years, therefore, there has been only a slight variation in the mortality rate. The age at death varied from 22 to 100, with an average of 59 years 5 months and 29 days. The number of years of practice varied from one to seventy-nine, the average being 31 years 6 months and 22 days. The chief death causes were, in the order named: heart disease, cerebral hemorrhage, violence, pneumonia, nephritis and senile debility.

Causes of Death.—There were 429 deaths assigned to general diseases; 314 to diseases of the nervous system; 291 to diseases of the circulatory system; 186 to diseases of the respiratory system; 140 to diseases of the digestive system; 159 to diseases of the genitourinary system; 161 to violence, and 53 to unknown or vaguely-described causes. Among the principal assigned causes of death were: valvular heart disease, 212; cerebral hemorrhage, 191; pneumonia, 145; nephritis, 135; accidents and senile debility, each, 102; tuberculosis, 97; cancer, 75; suicide, 45; angina pectoris, 37; typhoid fever, 35; after surgical operations, 34; diabetes, 30; septicemia, 27; appendicitis, 24; anemia, 19; meningitis, 18; gastritis, 17; cholelithiasis and influenza, each, 16; paresis, 15; homicide, 14; arteriosclerosis, 11; erysipelas, 10; drug addiction, 9; locomotor ataxia, 8; tetanus, 6; and smallpox, yellow fever, anterior poliomyelitis and Asiatic cholera, each, one.

The causes assigned to the 102 accidental deaths were as follows: 21 to poison; 14 to falls; 13 to gunshot wounds; 11 to railway casualties; 10 to runaways; 8 to drowning; 6 to automobiles; 5 to street cars; 4 to burns; 3, each, to asphyxiation and fractures of hip, and one, each, to motorcycle, earthquake, lightning, and kick of horse.

The methods chosen by the 45 who committed suicide were: firearms, 21; poison, 19; cutting instruments, 3, and asphyxiation and strangulation, each, one. Of the 14 homicides, 12 were by gunshot, one victim was beaten to death and one was stabbed. Feuds or affrays were responsible for 5 of the homicides, and one murder was committed by a victim of alcoholic mania.

Ages.—Of the decedents, 21 were between 91 and 100 years of age; 183 between 81 and 90; 405 between 71 and 80; 475 between 61 and 70; 396 between 51 and 60; 297 between 41 and 50; 239 between 31 and 40, and 78 between 22 and 30. The greatest mortality occurred at the ages 68 and 70, in each of which 57 deaths were reported; at 59, when 56 deaths were recorded, and at 62, when 54 died.

Years of Practice.—By periods of ten years, the deaths were as follows: In their first decade 227 died; second decade, 373; third decade, 453; fourth decade, 444; fifth decade, 359; sixth decade, 239; seventh decade, 58, and eighth decade, 4. Of the latter, one had practiced 72 years, two 73 years, and one 79 years.

Military Service.—During the year, 356 physicians died who had taken part in the Civil War, and, of these, 118 were in the Confederate service. Of the Federal soldiers, 112 are recorded as medical officers. The veterans of the Mexican War numbered 3; 27 had served in the Spanish-American War, and 17 in foreign wars. The Medical Corps of the Army sustained a loss of 20 officers, past and present; the Navy lost 22, the Public Health and Marine-Hospital Service 7, the Medical Reserve Corps 2, and the United States Revenue Cutter Service, the Canal Zone, and the U. S. Indian Service, each, one. The deaths of 24 past or present acting assistant surgeons in the Army were reported during the year. The National Guard lost 22 by death during the year, of whom 5 had attained the rank of surgeon general. One of the deceased served for several years as surgeon general of a Central American republic.

Medical Positions.—Medical colleges lost 126 professors, lecturers and instructors during the year; hospitals, 295 members of staffs; municipalities and counties, 190 health officers or city or county physicians; and boards of education and school boards, 79 members. There were 21 deaths of members of state boards of examination and registration; 26 of members of state boards of health; 51 of coroners; 80 of members of boards of United States Pension Examining Surgeons, and 115 of railway surgeons.

Two of those who died had been members of Congress; 17 had been state senators; 49 members of the legislature; 41 mayors; 40 aldermen; 83 in civil or municipal offices; 18 had served as postmasters, 24 as editors; and 20 were medical missionaries, or ordained clergymen.

Among the more prominent dead of the year are:

Charles Denison, Denver, specialist on climatology.

William Tillinghast Bull, New York City, eminent abdominal surgeon.

Daniel Roberts Brower, Chicago, dean of the neurologists of that city.

Thaddeus Asbury Reamy, Cincinnati, pioneer gynecologist and obstetrician.

Phineas Sanborn Conner, Cincinnati, surgeon and teacher.

Thomas J. Happel, Trenton, Tenn., for many years secretary of the State Board of Health and a trustee of the American Medical Association.

Joseph Martin Emmert, Atlantic, Iowa, sanitarian.

Sarah Hackett Stevenson, Chicago, pioneer woman practitioner and teacher.

William Thayer Smith, Hanover, N. H., teacher and writer on hygiene.

William Biddle Atkinson, Philadelphia, for thirty-five years Secretary of the American Medical Association.

Frank W. Reilly, Chicago, one of the first to attempt to instruct the people in public hygiene.

THE DEFENSE OF MEDICAL RESEARCH

The need for meeting agitation hostile to medical research is manifest from what that opposition has already accomplished and what it is still striving to do. Through such hostile agitation there was passed in Great Britain in 1876 a legislative act placing on medical investigators certain well-defined restrictions. Work of the first importance has been stopped in Great Britain, and British medical men have been compelled to go abroad in order to carry on investigations of great practical value. The names of Lord Lister and Sir Lauder Brunton need only be mentioned as instances of medical men whose investigations were hindered by the British act.

In spite of the enforcement of such drastic legislation as was obtained in Great Britain in 1876, not the slightest diminution in the antivivisection agitation has occurred—indeed, Great Britain may be regarded as the center of it. There are no less than fifteen antivivisection societies in Great Britain, and every one of them advocates the abolition of the use of living animals for medical purposes. The British experience is, therefore, highly significant as to the probable future of this movement. Just as our forefathers had to carry on the long struggle which has resulted in the legalized use of human bodies for medical and surgical instruction, so are we concerned with a similar long struggle for freedom of medical research.

In England, about a year and a half ago, a society was formed to instruct the public regarding the benefits obtained through animal experimentation and the practical results to medicine and surgery obtained by this method of medical advance. Already it is believed that an important change in the attitude of the public has been brought about through this educational campaign.

It may seem to some who have not followed the agitation in this country that there is only a remote possibility here of any legislation which would seriously interfere with medical progress. This sense of security is, however, to a large extent unjustifiable. At least six antivivisection societies now exist in this country, actively engaged in efforts to secure restrictive legislation; one of them publishes a monthly paper, while the others confine themselves to distributing literature. This literature, in the form of pamphlets, leaflets and press articles, is sent widely to newspapers in parts of the country where proposals for legislation are being urged. At least two of the societies are well supplied with money; indeed, this year one of them was left ten thousand dollars for antivivisection agitation. Evidently so long as money is readily available for promoting hostility to the use of animals in medical research there will be the problem of meeting that hostility.

The conviction has grown in this country, as in Great Britain, that the proper method of repelling the attacks of the antivivisectionists is to enlighten the public regarding the use of animals for medical advancement and regarding the benefits to man's estate that have come therefrom. With this conviction as a basis there was appointed last year by the American Medical Association a Council on Defense of Medical Research. This council is composed of representatives of various medical sciences who live in widely separated parts of the country. During the past year the council has been actively investigating the conditions of animal experimentation in laboratories throughout the United States, has taken precautions against the abuse of animal experimentation and against misconceptions of the conditions and purposes of medical research, and has planned a series of papers which will serve to diffuse information among the public regarding laboratory procedures and the results of laboratory study of disease.

The results of the investigation conducted by the council will be reported during the present year. In this number of THE JOURNAL appears the first of the series of papers arranged by the council.

These papers, written by experts, will deal with the importance of animal experimentation in the development of various phases of medical science and practice. The series will include a consideration of the relations of animal experimentation to the treatment of diphtheria and tetanus, meningitis, rabies, smallpox, dysentery and cholera and typhoid fever, plague, tuberculosis, syphilis, tropical protozoan diseases, and diseases caused by metazoan parasites; the papers will likewise take up the contributions made by animal experimentation to our knowledge of disturbances of internal secretions, the physiology of the circulation, pharmacology, venoms and antivenins and the principles of serum therapy. The subjects of two papers will be experimental surgery, surgical technic and aseptic surgery. Others will discuss cancer research, the relations of animal experimentation to hygiene and sanitary science, including the diagnosis and control of contagious diseases, the economic importance of diseases which have been lessened by animal experimentation, the use of animals in cattle bureaus, the experience with animals in laboratories, the ethics of animal experimentation, the educational value of opera-

tions on animals, and the more complex interrelations of research and practice.

The purpose in gathering this large body of evidence regarding the conditions of animal experimentation, and the results that have been derived from it, is to place before physicians facts with which they can meet criticisms directed against the laboratories and the laboratory workers. These papers will show how methods and information used daily in medical and surgical practice have had their origin in experimentation. They will also make clear the manner in which abolition of animal experimentation, or serious interference with it, will definitely check or disastrously retard the progress of medicine in fields where there is urgent demand for more exact knowledge.

Those who are doing their utmost to hamper the activities of medical investigators are sending broadcast statements only too often quite inaccurate and misleading. Nevertheless, these statements are popularly regarded as fair accounts of the procedures which attend medical investigation. The agitators are making converts because their activities are not met by corresponding activities on the part of medical men, and because their statements are not contradicted by the information which medical men are in a position to offer. Laboratory workers, unfortunately, who best know the falseness of the charges, are yet without sufficient power to answer effectively. One reason is that these workers are not engaged in public affairs, but are primarily students. Furthermore, even when they do speak, their motives are questioned—they are declared to be under the necessity of advocating the practice which provides them with a livelihood. The only persons in a strong strategic position to defend research and to preserve the freedom necessary for unrestricted progress in the knowledge of disease are the practicing physicians and surgeons. They are able through their special training to speak with authority concerning the benefits derived from animal experimentation, for they are employing information thus derived in the daily treatment of the sick. They are also in a position to know the methods employed in medical laboratories to advance knowledge of disease. On the other hand, they meet, in the course of their duties, persons whose feelings have been harrowed by the tales of torture that the antivivisectionists put forth, persons of humane temper seeking for the facts. The laboratory workers must depend on the practicing physicians and surgeons to be interpreters of their work and the spirit in which that work is performed.

ANTITYPHOID INOCULATION

Inoculation or vaccination with killed typhoid bacilli is practiced principally in order to prevent the development of typhoid fever; it has also been used during the course of the attack in the hope that it would promote recovery. In either case the aim is to stimulate the physiologic mechanisms whereby the body protects and immunizes itself against typhoid bacilli.

In regard to the inoculation form of treatment of the established disease, it must be said that it does not rest on as substantial a basis as does inoculation for preventive purposes. As just stated, it is aimed to stimulate the processes of immunization, but it does not appear that sufficient account has been taken of the fact that abundant stimulation may be and usually is caused by the infecting bacilli in the course of the attack, and of the further fact that there is a distinct limit to the power of response. Moreover, the direct effects of such inoculation on the processes of antibody production have not been followed closely and experiments have not been conducted on animals to determine the effect of injection of killed bacilli after infection has taken place. The available results of this treatment are in no way decisive as to its merits, and for the present it may be dismissed as being in the tentative and experimental stage and as not adapted as yet for general use.

Inoculation with typhoid vaccine has been used also in the case of chronic carriers of typhoid bacilli in the hope that it would hasten the disappearance of the bacilli, but thus far, unfortunately, without the desired result.

On the other hand, antityphoid inoculation for preventive purposes is a perfectly rational procedure, fully warranted by the results of experiment, and at this time, we may say, by the results of experience also. That injection of killed typhoid bacilli in normal persons actually sets the machinery of immunization in full motion is shown by the subsequent appearance in the blood of newly formed and specific antibodies. At first the lysin was regarded as the most important of these antibodies; but now that distinction must be shared with the opsonin, while the agglutinin still is looked on as a measure rather than a means of immunity. It is, of course, quite possible that other antibodies of even greater importance than the lysin and the opsonin are called forth, but which we at present are unable to detect and to measure. The antibodies mentioned appear in an orderly and typical manner after inoculation; measurement of their concentration in the blood reveals that, after a period of latency of two or three days, there sets in a steady increase, which reaches its maximum on about the tenth to the twelfth day and is then succeeded by a slow and gradual return to low level. By repeated injection of bacilli at the height of the curve the production may be still further increased and prolonged. The lysin, opsonin and agglutinin usually appear to run parallel in the curve of immunization, but deviations have been observed, especially in the latter part of the curve. It is asserted that increase in agglutinin may persist for two years, but no systematic observations have been made to determine just how long the antibodies remain above normal after inoculation. There is, however, experimental evidence to the effect that the once immunized organism retains the power to respond with

increased promptness and effectiveness to the corresponding infection, even if all the antibodies evoked by the primary immunization have disappeared from the blood.

We owe the working out of the details that make practicable the use of preventive antityphoid inoculations on a large scale to Wright in England principally, and to Pfeiffer and Kolle in Germany. The methods of Wright and of Pfeiffer and Kolle are essentially the same. Definite quantities of typhoid bacilli, killed by heating at 60 degrees C. for an hour or so, are injected subcutaneously, absolute sterility of the "vaccine" having been determined by cultural tests. Wright used twenty-four-hour to forty-eight-hour cultures in 1 per cent. peptone broth accurately neutralized, the single dose being seven hundred and fifty to a thousand million bacilli, determined according to the Wright method of counting. Pfeiffer and Kolle used twenty-four-hour agar cultures; two milligrams of which constitute one dose. In both cases the injections may cause practically the same local and general reactions. Soon after the injection some local swelling, pain and tenderness may develop with more or less enlargement of the regional lymph-nodes; in a few hours chilliness or distinct chills may ensue; followed by some fever, headache, general depression and weakness. As a rule these reactive symptoms last twenty-four to forty-eight hours, occasionally a little longer. The reactions are rarely severe, and, on the whole, the inoculations must be regarded as harmless. Various efforts have been and are being made to free the vaccine from its toxic properties without its losing any of its antigenic or immunizing powers, and we may look for substantial improvements in this direction.

It has been one of Wright's contentions that immediately after the inoculation, during the "negative phase," the anti-infectious powers of the body are reduced and the danger of infection consequently increased; hence special stress was laid on such adjustment of the dose that the negative phase could be eliminated so far as possible at the same time as good immunizing responses were obtained, and especially in case inoculations were to be given in the presence of a typhoid epidemic. In experiments on animals, however, Pfeiffer and Friedberger find that the general resistance to various infections is increased immediately after immunizing injections, and, judging from the experience with antityphoid inoculation, it does not appear that there are any good grounds for the fear that inoculation in the presence of epidemic typhoid may lead to undesirable consequences. The inoculations preferably are repeated twice, at intervals of ten days, the dose for the second and third injections being usually double that for the first. The reactions after the second and third injections are usually quite insignificant.

Extensive practical tests with antityphoid inoculation have been carried out among British and German colonial troops. Altogether nearly thirty-five thousand men have been inoculated, and the statistics show that the morbidity and mortality from typhoid fever have been very greatly reduced among the inoculated as contrasted with the non-inoculated. According to the last German report, the man who refuses inoculation is twice as liable to have typhoid as the man who accepts, and four times as liable to die of it. Particularly important are the latest statistics from the British service,[1] which show that for each case of typhoid fever in the inoculated there were ten among the non-inoculated, and that for each typhoid death among the inoculated there were ten among the non-inoculated. The death-rate from typhoid fever per thousand non-inoculated was greater than the incidence per thousand of the disease among the inoculated.

The protective efficacy of antityphoid inoculation consequently is firmly established, and no doubt its use will be greatly extended in the near future, especially, of course, in military services,[2] where the method, so to speak, originated and where there is such great need of means to control typhoid fever, but also in the efforts to limit the spread of typhoid fever wherever it occurs. Now that we understand the rôle of contact in the spread of typhoid fever, the need of protection in the household, in hospitals and institutions on the part of all who come in contact with typhoid patients or their belongings is quite self-evident. It is easy to see, too, that the danger from the chronic carrier of typhoid bacilli under special conditions might be materially lessened by inoculation of his intimate associates.

1. Leishmann, W. B.: Statistical Tables of Recent Results of Antityphoid Inoculation, Jour. Roy. Army Med. Corps, 1909, xii, 163. In this series the "vaccine" was prepared by heating to 53 C. for seventy minutes; it is said that "vaccine" so prepared does not lose so much of its immunizing property as that heated at a higher point.

2. See the valuable article by Major F. F. Russell, Medical Corps, U. S. Army, on the Prevention of Typhoid Fever by Vaccination and by Early Diagnosis and Isolation, Military Surgeon, 1909, xxiv, 479.

PRESERVATIVES AND PRESS AGENTS

Many and devious are the ways by which those who would "doctor" our food attempt to create public sentiment in favor of chemical preservatives. During the last few months a harmless looking letter signed "H. L. Harris" has appeared in the newspapers of those cities and towns in which deaths from ptomain poisoning (much-abused term) have recently been chronicled. This letter—we use the singular advisedly—does not vary in its wording in different papers, except for the opening sentence. It begins by referring to the death which the writer has seen reported in the paper written to, and then continues:

> "It is certainly appalling to learn how rapidly ptomain poisoning cases have increased since the enforcement of the pure food law. According to press dispatches there have been in the United States since the enforcement of this law 16,492 cases of ptomain poisoning, 573 of which were fatal. Prior to the enactment of the pure food law borax and boron compounds were used on meat, fish, fowl, sausages, oysters, etc., consequently such food, which readily becomes contaminated, was kept in a hygienic, healthful condition. . . ."

And much more to the same effect. The letter closes with the suggestion that the law should be so amended "as to permit the use of modern non-injurious preservatives." Not only in the form of letters do we find these much-reiterated sentiments of Mr. Harris. Overworked editors occasionally use them *en bloc* to fill a gaping void on the editorial page. For instance, we find in the Alliance (Ohio) *Review*, Dec. 4, 1909, an editorial (?) entitled "Ptomain Poisoning," which begins:

> "A recent case of ptomain poisoning in Alliance has caused the thought that it is certainly appalling to learn how rapidly ptomain poisoning cases have increased since the enforcement of the pure food law. According to press dispatches there have been . . ."

And so on; the Harris letter *verbatim et literatim*. As many of our readers will remember,[1] the H. L. Harris who thus champions the cause of boron compounds as food preservatives is the press agent of the Pacific Coast Borax Company, sometimes called the "borax trust." Harris also writes under the name of "H. H. Langdon," and on the stationery which carries this name he calls himself a "Food Expert," although the New York City directory has him listed as a "journalist." He has for years, under one or the other of these names, been writing "articles" systematically attacking pure-food legislation in general and Dr. Wiley in particular. It would be well for physicians to notice with some care both the correspondence and editorial columns of their local newspapers when cases of ptomain poisoning have been chronicled. The chances of a pro-borax article appearing subsequently are good in proportion to the care exercised by the clipping bureaus which furnish the borax company with such news items, and the carelessness of the editors of the papers which accept the Harris-Langdon inspired communications—either for correspondence or as "editorials."

These articles are not likely to appear in the metropolitan dailies, because nearly all such papers belong to an association which furnishes them with lists of press agents. But it is the papers of the smaller towns that Harris-Langdon delights to dupe into printing his contributions in favor of chemical preservatives. It is in such towns that the wide-awake physician can do yeoman service in the interest of public health by enlightening those editors who, through no fault of their own, are, or may yet be, misled into giving free publicity in the interests of the sophisticators of foodstuffs. Of course, in those cases in which the editor calmly appropriates Harris' "dope" and prints it as his own, the physician will not be thanked for mentioning the fact—but the editor should be advised, just the same.

1. The Journal A. M. A., Oct. 25, 1907.

THE WORK CURE IN NERVOUS CONDITIONS

The treatment of neurasthenia, hysteria, and allied conditions is the subject of an article by Dr. H. J. Hall, in this issue of The Journal, which is especially interesting in that it shows what can be done by a general practitioner with sufficient interest in the subject to individualize. Undoubtedly, the value of work in the treatment of such conditions has been demonstrated more or less successfully in individual cases by many neurologists. Dr. Hall's article, however, deals with a more extensive trial under conditions especially arranged for the purpose. Rational occupation has been employed in the treatment of insanity for a long time, though it has not been employed so extensively as it deserves. We are apt to associate the "rest cure" with neurasthenia; indeed, that is popularly all that is considered necessary in that condition, and it is not to be supposed that the work cure will displace it completely except in selected cases. As Dr. Hall says, it is no more reasonable to suppose that such a complex remedial measure as work can be used successfully in haphazard fashion than that drugs can be so used. Whether or not the work cure can be advantageously separated from the regular sanatorium treatment remains to be seen, but his experience seems to bear out his assertions; it is probable that in the future existing institutions will make arrangements for this method of treatment, though purely industrial colonies may be established by general practitioners in various parts of the country. The occupation treatment may even become a fad and may require judicious curbing, as is the case with the physical-culture craze which is now running riot. On the other hand, institutions for the work cure—by being self-sustaining, so to speak—might be able to reduce the excessive charges now apparently necessary for treatment of nervous patients, and would be a boon to individuals in modest circumstances who need medical advice regarding their infirmities. A well-directed change of occupation with continuous medical oversight has decided value in many neurotic conditions. In cases in which the conditions approached actual insanity, the patients have been restored to health by judiciously selected work, while without it they would probably have become incurably insane.

STANDARDS OF MEDICAL EDUCATION

In his address before the last meeting of the Association of American Medical Colleges, the report[1] of which has recently come to hand, President Henry S. Pritchett of the Carnegie Foundation for the Advancement of Teaching, reviews briefly the conditions underlying medical education as he sees them. He calls attention to the fact, often ignored, that the public itself is vitally interested in the maintenance of good professional standards both of medical education and for license to practice. No matter what medical sect practitioners may join, they must be trained in the fundamental sciences which underlie all medical practice, such as anatomy, physiology, pathology and the like. He shows that the public cannot possibly differentiate between the various medical sects, and their only protection is to insist that the man licensed to practice shall be well educated and thoroughly grounded in the fundamental sciences. This should apply to all practitioners regardless of sect. For the interests of the public, therefore,

1. Proc. Assn. Am. Med. Colleges, 1909, p. 19.

medical education should be taken off the commercial basis and fair standards should be enforced. While it was probable that the medical school would eventually be associated with the university, President Pritchett calls attention to the harm done to the cause of medical education by the desire of some universities to have medical schools as a part of their organizations without due regard to standards. He points out that many colleges and universities are to-day lending the shelter of their charters and the support of their names to medical schools which are purely commercial, and that such a connection is a disgrace to any true college or decent university. President Pritchett says that "no college has the right to undertake a medical school unless it is to serve medical education and the betterment of medical practice. To undertake a medical school merely for the sake of institutional completeness or to be able to print a few more names in the catalogue is a betrayal of education, not a service in its interests."

Medical News

ILLINOIS

Hospital Soon Ready.—The Whiteside Public Hospital, Sterling, is completed and ready to receive patients.

Wants State Sanatorium.—In the December Bulletin of the Illinois State Board of Health, the secretary, Dr. James A. Egan, makes a strong plea for the establishment of a state sanatorium for tuberculosis.

MARYLAND

Society Meetings.—At the annual meeting of Talbott County Medical Society, held December 22, the following officers were elected: Dr. Charles F. Davidson, Easton, president; Drs. Philip L. Travers, Easton, and Joseph A. Ross, Trappe, vice-presidents; Dr. Clifford M. Stelle, Cordova, secretary-treasurer; Dr. James A. Stevens, Easton, delegate to the Medical and Chirurgical Faculty; Dr. Charles H. Rose, Cordova, alternate; and Drs. Samuel C. Trippe, Royal Oak, William S. Seymour, Trappe, and S. Denny Wilson, Easton, censors.——Dorchester County Medical Society, at its annual meeting, held in Cambridge, December 14, elected Dr. Victor C. Carroll, Cambridge, president; Dr. C. Frank Maguire, Hurlock, vice-president; Dr. William H. Houston, Fishing Creek, secretary; Dr. Benjamin L. Smith, Madison, delegate to the Medical and Chirurgical Faculty, and Dr. Eldridge E. Woolff, Cambridge, alternate.

Baltimore

Personal.—Dr. Martin S. Sloan of the Louisville Sanatorium has been elected a resident physician of the Eudowood Sanatorium for Consumptives, vice Dr. Foster, resigned. ——Dr. Howard A. Kelly was thrown from his motorcycle December 23, receiving painful wounds and contusions of the head and arms.

New Cottage for Tuberculous Children.—Mrs. Henry Barton Jacobs will erect a new cottage for children at the Eudowood Sanatorium for Consumptives to cost from $10,000 to $15,000, dependent on the raising of a maintenance fund by the public. There are at present six children in the institution and the new cottage will accommodate about ten.

Trade Organizations Object to Sanitarian.—Dr. Marshall L. Price, secretary of the State Board of Health, has incurred the displeasure of the trade organizations, who suggest a druggist in his place. The seat of the discontent appears to be in the enforcement of the pure food bill. Dr. Price received his practical training in public hygiene under Dr. John S. Fulton, and under his direction, Maryland is being recognized as one of the most advanced states in the union in this regard. The Maryland system of control of tuberculosis has recently been adopted in New York and other states. The administration of the pure food law, while it unquestionably belongs to the state board of health, is not the most important part of the functions of that body.

City Will Take Over Tuberculosis Work.—The city of Baltimore, on January 1, takes over the tuberculosis work of Baltimore, which has been in the hands of the Instructive Visiting Nurses' Association for the past five years. The work will be under the care of the health department and the employment of fifteen nurses has been authorized by the board of estimates, and 1,700 patients will be turned over by the association. The city will be divided into fourteen districts with one nurse in each district, who will be held responsible for the cases therein, and for the inspection, fumigation, and removal, when necessary, of furniture in case of death from tuberculosis. She will instruct patients and friends as to the best methods of living, etc.

MASSACHUSETTS

Money for Hospital.—Frederick F. Ayer, New York City, sent a check for $50,000 to the Lowell General Hospital, December 14, making his benefactions to that institution $200,000.

Personal.—Dr. James A. King, Millville, is sepnding the winter in Berne, Switzerland, at the clinic of Prof. Dr. Kocher.——Dr. Kendall Emerson, Worcester, has been elected chairman of the committee on school hygiene, vice William H. Burnham, resigned.

Free Public Lectures.—The free public medical lectures which the faculty of the Harvard Medical School have given in recent years will be resumed January 2. They are given at the school on Saturday evenings at 8 o'clock and on Sunday afternoons at 4 o'clock. The subjects and the speakers for January are: January 2, Dr. F. P. Benedict: "The Influence of Mental and Muscular Work on Nutritive Processes" (illustrated). January 9, Dr. Maurice V. Tyrode: "What the Public Should Know About 'Patent Medicines.'" January 16, Dr. William T. Porter: "The Growth of School Children and Its Relation to Disease." January 23, Dr. Walter B. Cannon: "The Glands of Internal Secretion and Their Relations to Health and Disease" (illustrated). January 30, Dr. Clarence J. Blake: "Hearing and Speech." January 8, Dr. Milton J. Rosenau: "The Story of Vaccination." January 15, Dr. Calvin G. Page: "Clean Milk" (illustrated). January 22, Dr. John B. Blake: "Sprains, Strains and Fractures; Simple Facts of Diagnosis and Treatment" (illustrated), and January 29, Dr. John H. McCollom, "Smallpox" (illustrated).

MICHIGAN

Lodge Practice.—Oakland County Medical Society, at its last meeting passed by a vote of 32 to 5, an amendment to the constitution, stipulating that after January 1, no member may continue to do such lodge business and continue to be a member of the society unless he obtains for his compensation fees equal to those established by usage in the community in which he resides. This action was taken only after the House of Delegates of the state society had passed a resolution calling on county societies to take action directed against this abuse.

Annual Meetings of Societies.—At the annual meeting of Kalamazoo Academy of Medicine, held in Kalamazoo, December 13, the following officers were elected: President, Dr. George F. Inch, Kalamazoo; vice-presidents, Drs. John B. Jackson and Orton H. Clark, Kalamazoo, and George F. Young, South Haven; secretary-treasurer, Dr. Charles E. Boys, Kalamazoo; censors, Drs. David J. Levy and Daniel H. Eaton, Kalamazoo; delegates to the state medical society, Drs. Leslie G. Rhodes, South Haven, and George F. Young, South Haven, and alternates, Drs. Edward P. Wilbur, Kalamazoo, and Labb.——Lenawee County Medical Society, at its annual meeting in Adrian, December 14, elected Dr. George H. Lamley, Blissfield, president; Dr. Oat Whitney, Jasper, vice-president; Dr. Artemus W. Chase, Adrian, secretary-treasurer; and Dr. Lucian G. North, Tecumseh, delegate to the state society.——At the annual meeting of Saginaw County Medical Society, held in Saginaw, December 16, the following officers were elected: Dr. Pearl S. Windham, Saginaw, president; Dr. William L. Dickinson, Saginaw, vice-president; Dr. J. Neil McLean, Saginaw, secretary-treasurer; and Drs. William F. English, Bert B. Rowe, and Elmore E. Curtis, all of Saginaw, directors. The society decided to cooperate with the state society in its plan for legal defense, and elected Dr. William J. O'Reilly, Saginaw, as a member of the joint committee for this purpose.——Menominee County Medical Society, at its annual meeting, held December 14, elected the following officers: President, Dr. Earl V. McComb; vice-president, Dr. Henry T. Sethney; secretary-treasurer, Dr. Calvin R. Elwood, and censors, Drs. Robert G. Marriner and Henry A. Vennema, all of Menominee.

MISSISSIPPI

Hospital for Meridian.—A movement has been inaugurated in Meridian by the trustees of the Mississippi Medical College for the establishment of a state hospital in that city. A site for the hospital has been donated adjacent to the college.

Colleges Open.—The fourth annual session of the Mississippi Medical College, Meridian, opened October 4. The opening address was delivered by Dr. William W. Hamilton, Meridian. Dr. George W. Stephens, professor of chemistry and toxicology, has been added to the faculty.——The opening exercises of the University of Mississippi Medical School were held September 3 at Vicksburg. Addresses were made by the governor, Chancellor A. A. Kincannon of the University, Dr. Dudley W. Jones, president of the state medical association, and others.

Medical Society Meetings.—The Tri-County Medical Society of Copiah, Lincoln and Pike held its annual meeting at Brookhaven, December 14, and elected the following officers: President, Dr. Thomas Purser, McComb; vice-presidents, Drs. James M. Dampeer, Crystal Springs, Oscar N. Arrington, Brookhaven, and Clark H. Rice, McComb; secretary-treasurer, Dr. Dudley W. Jones, Brookhaven, and censor, Dr. W. S. Lampton, Magnolia.——Warren County Medical Society held its annual meeting in Vicksburg and elected Dr. Sydney W. Johnston, Vicksburg, president; Dr. Vincent Bonelli, Vicksburg, vice-president; Dr. James H. Fox, Vicksburg, secretary-treasurer; Dr. B. Iverson Hicks, Vicksburg, censor, and Dr. W. B. Dougherty, Vicksburg, delegate to the state association.——At its annual meeting in Greenwood, the LeFlore County Medical Association elected the following officers: President, Dr. William T. Mathews, Greenwood; vice-president, Dr. H. L. Shannon, Ittabena; secretary-treasurer, Dr. William B. Dickins, Greenwood, and delegate to the state association, Dr. Benjamin F. McNeal, Ezra.

MISSOURI

Personal.—Dr. George O. Coffin, Kansas City, formerly city physician, suffered a slight cerebral hemorrhage, December 6.——Dr. Frederick A. Patterson has been continued as acting superintendent of State Hospital No. 2, St. Joseph.——Dr. Charles B. Irwin is said to be the appointee as physician at the Kansas City Tuberculosis Hospital.

Medical Society to Erect Building.—The Jackson County Medical Society has purchased a lot on Thirty-fourth street and Gillham Road, Kansas City, and plans are being made for the erection of a building which is to be the home of the physicians of the city and county. It will be used as a meeting place, and will be equipped with a medical library and museum.

Society Meetings.—At the annual election of the St. Louis County Medical Society, held in St. Louis, December 8, Dr. Leander W. Cape, Maplewood, was elected president; Dr. Ralph W. Mills, Webster Groves, vice-president; and Dr. Pierre M. Brossard, Maplewood, secretary-treasurer.——Jackson County Medical Society, at its annual meeting, December 7, elected the following officers: Dr. Bennett C. Hyde, president; Dr. Jefferson D. Griffith, vice-president; Dr. Edward L. Stewart, secretary; Dr. William F. Kuhn, treasurer; Dr. Frank C. Neff, censor; and Drs. William J. Frick, Herman E. Pearse, James Q. Chambers, and Albert J. Welch, delegates to the state association, all of Kansas City.——The St. Joseph-Buchanan County Medical Society, at its annual meeting, December 8, elected the following officers: Dr. Charles R. Woodson, president; Drs. Frederick H. Ladd and Levi S. Long, vice-presidents; Dr. Charles Wood Fassett, secretary (reelected); Dr. John M. Bell, treasurer; Dr. O. Beverly Campbell, censor; Dr. Arthur B. McGlothlan, delegate to the state association, and Dr. Harrison S. Forgrave, alternate, all of St. Joseph. The society accepted the offer of the Ensworth Medical College for a meeting place, and also decided to continue the post-graduate work of instruction on the plan published by the American Medical Association.

St. Louis

Neumann in St. Louis.—Prof. Heinrich Neumann, Vienna, arrived in St. Louis December 8, and delivered a course of clinical lectures on diseases of the ear.

Physicians Interested in New Life Insurance Company.—The Inland Insurance Company has been incorporated with a capital stock of $150,000. Drs. Burwell W. Gunn, Paul R. Baer, Johannes Demmler, Theodore Greiner, and Benjamin Shanklin are members of the board of directors.

Fail to Report Contagious Cases.—Six physicians of the city were arraigned before Judge Tracy, December 15, for failing to report cases of contagious diseases to the board of health as required by ordinance. One was fined $250 and costs, two $50 and costs each, one was acquitted, and two cases were continued.

Personal.—Dr. Leo Loeb, formerly director of the laboratory of experimental pathology in the Medical Department of the University of Pennsylvania, has accepted the position of pathologist to the St. Louis Skin and Cancer Hospital.

Fined for Illegal Practice.—W. T. Johnson is said to have pleaded guilty, November 29, to three charges of practicing medicine without a license, and was fined $50 and costs for each offense.——Moses Helscher, who styles himself "Moses II," is said to have been found guilty of practicing medicine without a license, December 10, and to have been sentenced to pay a fine of $500 and be imprisoned thirty days in the county jail.

Municipal Tuberculosis Organ.—The November number of the Bulletin of the Municipal Commission on Tuberculosis of St. Louis announces that it will hereafter be under the editorial management of Dr. Kenneth W. Millican. The Bulletin contains 80 pages, the principal article being an address on "A State Campaign Against Tuberculosis," delivered before the Conference of Charities and Corrections at Farmington, on November 6, by Dr. H. Orville Brown, superintendent of the State Sanatorium for Tuberculosis. It contains also a report of deaths from tuberculosis in St. Louis during August, reports on the progress of the campaign, sanitary rules for city employees issued by the mayor of St. Louis on the recommendation of the commission, a brief review of recent literature on tuberculosis, and much other pertinent editorial comment. The Bulletin should do effective work in the campaign against tuberculosis in Missouri, and should receive liberal support from the authorities and the people of St. Louis.

NORTH CAROLINA

Personal.—Dr. Harry Q. Alexander, Matthews, has been reelected physician of the State Farmers' Union.——Dr. Silvio H. Von Ruck, Asheville, is spending the winter in post-graduate work abroad.——Dr. James M. Sloan has been appointed surgeon of the Carolina and Northwestern Railway at Gastonia, and Dr. Lucius N. Glenn, assistant surgeon.——Dr. E. Reid Russell, Charlotte, one of the founders of the North Carolina Medical College, and head of the Eye, Ear, Nose and Throat Department, has resigned and moved to Asheville. W

Watts Hospital Opened.—On December 1 the handsome new Watts Hospital, Durham, was formally opened to the city and county by Mr. George W. Watts. The hospital occupies a magnificent site in the center of a park of 28 acres, and is donated to the city and county with an endowment of $100,000, with a single condition "that no worthy poor be excluded from its doors." The hospital will accommodate 100 patients, and by the wishes of the donor will be under the control of the Durham County Medical Society and Durham Academy of Medicine. W

County Society Elections.—Wilson County Medical Society, at its December meeting, elected Dr. Henry B. Best, president; Dr. Carl Moore, vice-president; Dr. Elijah T. Dickinson, secretary, and Dr. Benjamin S. Hering, delegate to the state society, all of Wilson.——Mecklenburg County Medical Society recently elected the following officers: President, Dr. Andrew J. Crowell; vice-president, Drs. Francis O. Hawley and Leone B. Newell and Charles A. Meisenheimer; and secretary-treasurer, Dr. Robert H. Lafferty, all of Charlotte.——At the meeting of the Guilford County Medical Society in Greensboro, December 2, Dr. Charles S. Gilmer, Greensboro, was elected president; Dr. Charles W. Moseley, Greensboro, vice-president; Dr. J. Parran Jarboe, Greensboro, secretary-treasurer, and Dr. William P. Beall, Greensboro, censor.——Cumberland County Medical Society, at its annual meeting, elected the following officers: Dr. Seavy Highsmith, Fayetteville, president; Dr. Percy W. Olive, Wade, vice-president; Dr. William S. Jordan, Fayetteville, secretary, and delegate to the state society, Dr. Jacob F. Highsmith, Fayetteville.——Gaston County Medical Society has elected the following officers: President, Dr. George R. Patrick, Lowell; vice-president, Dr. John H. Jenkins, Dallas; secretary, Dr. Lucius N. Glenn, Gastonia, and delegates to the state society, Drs. David A. Garrison and Lucius N. Glenn, Gastonia.

NEW YORK

Addition to Hospital.—The two additional buildings for the maternity department of the Rochester City Hospital are nearing completion. They are of brick, two stories in height, fireproof, and will cost about $100,000.

New Standard Certificate of Death.—Beginning with January 1, the New York State Department of Health requires the use of the recently-revised United States Standard Certificate of Death. The form has been approved by the United States Census Bureau and the American Public Health Association. The uniform adoption of this certificate will greatly facilitate the study and comparison of mortality statistics.

Medical Society Meeting.—The eighty-sixth annual meeting of the Medical Society of the County of Erie was held in Buffalo, December 20. The following officers were elected: President, Dr. Grover W. Wende; vice-president, Dr. Bernard Cohen; secretary, Dr. Franklin C. Gram; treasurer, Dr. Albert T. Lytle; chairman of registration committee, Dr. F. Park Lewis; chairman of committee on public health, Dr. Ernest Wende; and chairman of board of censors, Dr. John H. Grant, all of Buffalo.

State Rabies Treatment.—Contending that in many instances rabies is due to laxity of public health control, Dr. Eugene H. Porter, State Commissioner of Health, believes it is the duty of the state to furnish treatment to those afflicted with the disease. Preparations have been completed at the State Hygienic Laboratory to take up this work. Time and money have been lost in the past by sending the victims of rabies to New York City, while the laboratory at Albany will be sufficiently central to furnish treatment to every citizen in the state.

New York City

New Headquarters for Board of Health.—The board of estimates, on December 10, voted to purchase for $850,000 a twelve-story building at Sixteenth street and Irving place, to be used as headquarters for the Board of Health and other departments.

Appropriations for Hospitals.—Within the past month the city has appropriated $2,500,000 for hospitals for the treatment of tuberculosis on Staten and Blackwell's islands. When these hospitals are completed, the city will have 2,500 beds in special tuberculosis hospitals.

Physical Tests Before Graduation.—By a ruling of Superintendent Maxwell all pupils in the elementary schools will be required to pass satisfactory examinations in physical culture before graduation. The requirements are: success of the pupil in carrying out certain instruction in regard to cleanliness of face, nails, mouth and clothing; the pupil must acquire good posture and expression of vigor; gymnastics for the boys and folk-dances for the girls.

New Wing for Hospital Opened.—The new south wing of the Long Island College Hospital, Brooklyn, which is part of a memorial erected by J. Rogers Maxwell to his brother, Henry W. Maxwell, has been opened. This wing contains the Skene Memorial Amphitheater, named in honor of Dr. Alexander J. C. Skene. The wing will accommodate 165 adults and 65 children, and contains two operating rooms, an *x*-ray room, and a mortuary chapel. The amphitheater will seat 300 students.

Society Election.—The Eastern Medical Society of the City of New York has elected the following officers: President, Dr. Abraham J. Rongy; vice-presidents, Drs. Abraham Hymanson and Meyer M. Stark; recording secretary, Dr. Maurice O. Magid (reelected); corresponding secretary, Dr. Harry E. Isaacs; treasurer, Dr. Joseph Bieber; trustee, Dr. Charles Goodman; and chairmen of committees: Ethics, Dr. David Robinsohn; admissions, Dr. Sidney D. Jacobson; house, Dr. David J. Hyman, and library, Dr. Emil Altman.

PENNSYLVANIA

Physicians Arraigned.—Dr. R. J. Brauner, State Health Inspector, is bringing many prosecutions against physicians of Schuylkill county for neglecting to report births within the ten days required by law. On December 9, the following physicians were arraigned before Justice of the Peace H. B. McCool: Drs. John McCrystle and George A. Merkle, of Minersville; Alexander L. Gillars and George H. Boone, of Pottsville; Paul B. Dunn, of Mahanoy City; S. H. Brady, of Girardville; Daniel J. Langton and Christian Gruhler, of Shenandoah. The cases against Drs. Gillars, Merkle and McCrystal were dismissed and others entered bail for their appearance at court.

Philadelphia

Poor Directors Choose Officers.—At a meeting of the Directors of the Poor of the Oxford and Lower Dublin District, held in Holmesburg, December 16, the following medical officers were elected: Dr. Joseph R. Knight, physician for poorhouse and Fox Chase District; Dr. Clarence J. Lewis, physician for Holmesburg; Dr. Thomas Allison, physician for Frankford.

Appropriation for Health and Charities Cut.—Councils subcommittee on finance to the Common Council on December 16, the six department appropriation bills that had been received favorably by the committee and the amounts asked for and received. Among the others was the Department of Health and Charities, which asked for $1,517,831 and received $801,540. In the health and charities appropriation the Health Bureau gets $321,000.

Phipps Institute to Affiliate with the University.—Formal announcement is made by the University of Pennsylvania that the Henry Phipps Institute for the Treatment and Prevention of Tuberculosis will be united with the university. This change will not take place until after the completion of the new buildings, which are to be erected by Mr. Phipps at a cost of more than $500,000 at Seventh and Lombard streets.

SOUTH CAROLINA

Society Meetings.—At the annual meeting of Greenville County Medical Society, December 6, held in Greenville, Dr. Ernest W. Carpenter, Greenville, was elected president; Dr. Wyatt Y. McDaniels Taylors, vice-president; Dr. Charles O. Bates, secretary; and Dr. R. D. Smith, Greenville, treasurer. ——The annual meeting and banquet of the Charleston County Medical Society was held in Charleston December 13, and the following officers were elected: President, Dr. Archibald E. Baker; vice-president, Dr. Charles P. Aimer; secretary, Dr. William C. O'Driscoll; treasurer, Dr. Rowland Alston; librarian, Dr. Julius C. Sosnowski; censor, Dr. Charles M. Reese, and delegate to the state association, Dr. Allen J. Jervey, all of Charleston.

GENERAL NEWS AND COMMENT

The Knights of Modern Chivalry and the Days of Reckoning

For several months physicians have been receiving from one Ira Clay Hicks, M.D., letters on the official stationery of the Senate Chamber of the State of West Virginia. Not all these letters, however, have been mailed from, or dated at, Charlestown, W. Va.—most of them coming from Albany, N. Y., while some emanated from Huntington, W. Va. The wording in all has been essentially the same and has called attention to the fact that "the writer is interested in a fraternal order now being perfected pursuant to the laws of New York; and known as 'Supreme Court, Knight of Modern Chivalry.'" Dr. Hicks states that while he does not know personally the physician he is addressing, he knows him to be "one of the leading physicians in your town, from recommendation and Polk's Directory" (!), and he has therefore taken the liberty of recommending his addressee to an "important appointment." The appointment in question is that of becoming "city court Esculapius for the purpose of making examinations and attending disabled members." The "string" attached to this "appointment" is that the physician shall "kindly forward us your check . . . in the sum of $25."

To lend an air of respectability to this scheme, not only is the State of West Virginia rung in, but the American Medical Association also is used. Says Dr. Ira Clay Hicks:

> "I am a member of the A. M. A. and I can authoritatively say that the proposition is absolutely and entirely ethical."

If by "authoritatively" Dr. Hicks means that he speaks on the authority of the American Medical Association, the sentence quoted contains two clearly defined untruths, for Ira Clay Hicks is not—and never has been—a member of the American Medical Association, and the Association has never pronounced the Knights of Modern Chivalry in any sense an "ethical," or any other kind of a proposition.

When the "order" was first started, the physicians who were written to were told that "there are only two hundred appointments to be made," and an imposing reproduction of a certificate of the National Surety Company of New York was shown. The certificate stated that a "schedule bond" had been issued in behalf of the trustees who were to have charge of the amount of money sent in by "the two hundred original subscribing members . . . ." The plan evidently worked well, for we find before the time of the first "schedule bond" had expired another was issued to cover the amounts sent in by "the three hundred additional original subscribing members."

The "chief justice" of the order is N. Napoleon Hicks, or Norman N. Hicks, who advises physicians that they have been recommended to him by Dr. Ira Clay Hicks. N. N. Hicks, who sometimes writes from Albany, N. Y., and sometimes from Schenectady of the the same state, has, we understand, been connected with at least two other insurance

concerns which have ceased to exist. In his letters he tells physicians that he has "an exceptionally extraordinary proposition to make." As an additional bait, prospective applicants to membership are sent photographic reproductions of checks sent in by physicians who have already bitten. Altogether, the plan seems to have worked very well—from the standpoint of the "organizers."

Apropos of the above, the following from the *Boston Herald* may interest those who have parted with the $25 necessary to become "city court Esculapius":

DOCTORS GAVE $25 TO FAKE SOCIETY

WERE TO BECOME EXAMINERS OF "KNIGHTS OF MODERN CHIVALRY" NOW UNDER BAN OF NEW YORK INSURANCE SUPERINTENDENT

Albany, N. Y., Dec. 22.—That scores of physicians all over the country have contributed $20 each for a benefit certificate in the "Knights of Modern Chivalry," with an additional $5 as a fee for the title of "City Court Esculapius," or in plain terms, medical examiner, developed to-day when an order was obtained from Supreme Court Justice Chester placing Supt. Hotchkiss of the state insurance department in charge of the affairs of the organization.

The society was organized last June by N. Napoleon Hicks. Although $6,605 has been paid in, almost wholly by physicians, no insurance has been paid, and the society has but $109 in its treasury, with apparent liabilities of $1,407.

"Check stubs indicate," said Supt. Hotchkiss, "that more than half the money disbursed has been paid to N. Napoleon Hicks, who is 'chief justice' of the society."

Complaint having been made as to the failure of the society to meet an accident claim, the insurance department called for a statement.

Physicians became interested in the representation that lodges were to be formed in various cities and villages and that they were to be appointed medical examiners.

"No lodges have been formed," said Supt. Hotchkiss, "and the society is now nothing more than an assessment association whose members have parted with their money and become liable to assessments without having secured any benefits or being likely to secure any."

Medical History Society Formed.—The Society of Medical History of Chicago has been recently organized, with Dr. Isaac N. Danforth as president; Dr. N. S. Davis, vice-president, and Dr. George H. Weaver, secretary. Its council consists of Drs. Ludvig Hektoen, George H. Weaver, John Edwin Rhodes, N. S. Davis, Henry T. Byford and George Henry Cleveland. Dr. Howard A. Kelly of Baltimore will deliver the address at the first meeting, which will occur on the evening of Feb. 19, 1910. This society has been formed for the purpose of systematically collecting and permanently preserving in an accessible manner any matters which are or will become of interest in connection with the medical history of institutions, organizations and individuals, especially of Chicago and the surrounding states. THE JOURNAL discussed this subject Aug. 14, 1909, page 561. Some of the materials included in such a collection are: western medical books and articles, biographies and histories, local medical journals published prior to 1880, and especially prior to the Chicago fire, catalogues, announcements, diplomas, graduation programs, official reports, directories, photographs, manuscripts, instruments and anything which has a medico-historical value from any source. By meetings the society will endeavor to stimulate the writing of historical papers founded on research from original sources. It desires to aid the present generation in gaining inspiration from the study of what its predecessors accomplished. The society asks the support of the profession. It makes a special appeal to those outside of Chicago for anything antedating the Chicago fire. It will gladly cooperate with other organizations operating in similar lines. Everything collected will, as soon as possible, be so arranged as to be accessible to persons doing research in medical history. Gifts will be credited to the donors. All communications should be sent to Dr. George H. Weaver, secretary, 1743 West Harrison street, Chicago.

Jacobi Research Fund Available.—The Women's Medical Association of New York City offers the Mary Putnam Jacobi Fellowship of $800 available for graduate study. It is open to any woman graduate in medicine. The fellowship will not be awarded by competitive examination, but on proof of ability and promise of success in the chosen line of work. Applications for the year 1910-11 must be in the hands of the committee on award by March 1, 1910, and must be accompanied by: 1. Testimonials as to thoroughly good health. 2. Letters as to ability and character. 3. A detailed account of educational qualifications. 4. A statement of the work. 5. Examples, if any, of her work, in the form of articles or accounts of investigations carried out. It is preferable that the applicant present herself in person. All applications should be forwarded to the chairman of the committee on award, Dr. Emily Leewi, 35 Mt. Morris Park West, New York City.

Surgeons and Gynecologists Elect Officers.—At the annual meeting of the Western Surgical and Gynecological Association, which met in Omaha December 21, the following officers were elected: President, Dr. John P. Lord, Omaha; vice-presidents, Drs. Harry M. Sherman, San Francisco, and Lewis L. McArthur, Chicago; and secretary-treasurer, Dr. Arthur T. Mann, Minneapolis. The next meeting will be held in Chicago. ——The twenty-second annual session of the Southern Surgical and Gynecological Association was held in Hot Springs, Va., December 14-16. Nashville was selected as the place for the next convention, and the following officers were elected: President, Dr. William O. Roberts, Louisville; vice-presidents, Drs. Joseph C. Bloodgood, Baltimore, and Lewis C. Morris, Birmingham, Ala.; secretary, Dr. William D. Haggard, Nashville, Tenn., and treasurer, Dr. William S. Goldsmith, Atlanta, Ga.

Journal of the Delaware Medical Society.—This very attractive publication makes its initial appearance with the December issue. So far as appearances go, it stands alone in medical journalism. It savors rather of the output of a society of art than of medicine—but that is favorable and not unfavorable criticism. Much credit is due the editorial staff for putting forth so commendable a piece of work. It is well arranged, well edited, and well printed on a full finished paper, from clear, clean type, which does not try vision. The contents deserve the highest praise, and promise a good future for this publication.

The Gibbs Fund.—The council of the New York Academy of Medicine announces that the income of the Edward N. Gibbs fund, amounting to $500 a year, will be granted for a period of years to any qualified worker to be selected by the council from those who may apply for its use in research in the clinical, pathologic or chemical problems of diseases of the kidney. Applications stating the qualifications of the applicant and the topic which he proposes to pursue should be sent to the secretary of the council of the New York Academy of Medicine, 17 West Forty-third street, New York City.

Bust of Pasteur Presented.—The Pasteur Institute of Paris has presented to the Rockefeller Institute for Medical Research, New York City, a replica of the bronze bust of Louis Pasteur by Paul Dubois, in recognition of the assistance rendered during the recent epidemic of cerebrospinal meningitis which prevailed in France.

Journals Consolidate.—Dr. W. J. Robinson of the *Critic and Guide, American Journal of Urology* and *Therapeutic Medicine* has purchased *Practical Therapeutics* and consolidated it with *Therapeutic Medicine*.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 18, 1909.

Vital Statistics in 1908

The seventy-first annual report of the registrar general of births, deaths and marriages in England and Wales has just been issued and contains several figures of interest. It is based on an estimated population in the middle of 1908 of 17,071,524 males and 18,277,256 females. The marriage rate during the year was 14.9 per 1,000 of the population of all ages, 0.9 below the rate for 1907, and the same figure below the average for the last ten years. In previous reports it has been pointed out that although it was possible many years ago to trace some correspondence between the fluctuations in the marriage rate and the fluctuations in the price of wheat, in more recent years the figures show no such parallelism, but the fluctuations in the marriage rate show some correspondence with the fluctuations of exports and of employment. The births numbered 940,383, of which 37,531 were illegitimate. The birth rate was 26.5 per 1,000 living, 0.2 per cent. above that recorded in 1907, but 1.6 below the low rates of the ten years 1896-1907. In the year 1876 the birth rate in this country attained the highest point on record, 36.3 per 1,000. Since that date, with a few insignificant exceptions, it has fallen year by year until in 1907 it was 26.3. Although the slight rise in 1908 is noteworthy, it is probably a reflection of the upward change in the marriage rate, which took place in the years 1905-'07. There is no present indication, says the report, of any real check in the decline of the birth rate. The provisional returns for 1909 show a decrease in each quarter as compared with the corresponding quarter of the previous year, while the heavy fall in the marriage rate of 1908 will probably depress the rate further in the following years. The death rate from all causes was 14.7 per 1,000, 0.3

per 1,000 below the rate of 1907, and lower than the rate of any year on record. Compared with the average of in the ten years 1898-1907, the death rate in 1908 showed a decrease of 1.7. Of infants under 1 year 120 died per 1,000 births. This rate was 2 per 1,000 above that of 1907, but 22 below the average of the previous ten years. In the report for 1907 a decline in mortality from cancer was reported. Unhappily there is now recorded a slight increase. Comparison with other European countries shows an unenviable position. The death rate from cancer is exceeded only by that of two other countries, Switzerland and the Netherlands. Scotland occupies a slightly better position than England, and Ireland, notwithstanding its higher age constitution, a much better position.

The Health of the Army

In his report for 1908, which has just been issued, Surg.-Gen. Sir Alfred Keogh states that for several successive years a decline in the incidence of sickness in the army has been shown. He now reports a further diminution in the figures for last year. During that period the admissions to hospital represented a ratio of 573.1 per 1,000 of strength, deaths 4.78, invalids sent home 15.91, finally discharged 10.32, and those constantly sick 32.28. A steady improvement in the health of the army has taken place since 1899, the diminution in sickness being most marked from 1904. Between 1899 and 1908 the admission to hospital figures have been reduced nearly one-half. As a result of this improvement the effective strength of the army within the last decade has been raised by 5,776 men and the wastage through deaths and invaliding has been reduced by 2,900 men per annum. Within four years these changes have allowed of the reduction of hospital beds at home stations by over 2,200 and similar reduction is being carried out for stations abroad. These results are attributed to improved sanitation, improved methods in treating disease, and greater care in recruiting. Formerly in all cases of illness the soldier was compelled to enter hospital. Now an out-patient system has been adopted by which the milder cases are treated in barracks. The personnel of the army surgeons has been greatly improved. Increased pay, the necessity of passing examinations for promotions, leave for periodical study at the hospitals, and the introduction of specialism has greatly increased their efficiency. Great developments have taken place in the military hospitals where operations are now performed which were never attempted before. Sanitary administration has reached a high level. Officers and men are instructed in elementary hygiene. There is a great decline in enteric fever, Malta fever, malarial fever, tuberculous diseases and heart affections. Both in this country and India there has been a marked decline in alcoholism largely due to temperance propaganda. In the United Kingdom the admissions for alcoholism numbered only 80, as compared with 119 in 1907. Comparison of the health of various armies shows that the British is the best but one, while the Army of the United States is by far the worst. The following table gives the incidence of disease per 1,000 strength: Russia, 415; United Kingdom, 428; Germany, 588; France, 681; Austria, 826, and the United States, 1,172. Comparison with the figures of the previous year show that the British army, the German army and the United States Army have improved, while the other armies have deteriorated. In regard to enteric fever, the British army shows a very favorable position; the incidence of the disease is only 0.7 per 1,000; the Russian army occupies the lowest place, with an incidence of 5.6 per 1,000, and is followed by the French with 4.5. The best place is occupied by the German army, with only .51. Tuberculosis shows a great improvement in the British army, but appears to be very prevalent in the French and American armies, in which the incidence is three times greater. Greater care is now taken of the soldier's teeth, and tooth-brushes are issued to the troops. The life of masticatory efficiency of the teeth has consequently been prolonged, but much still remains to be done in the education of the men.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 16, 1909.

The Insane in the Army

Drs. Antheaume and R. Mignot have just published a book on mental maladies in the French army. This is a timely subject, which attracts much attention, not only in the medical profession, but also among the public. It was, moreover, discussed at the last French Congress of Alienists and Neurologists, at which it was the subject of a report by Dr. Granjux (THE JOURNAL, Aug. 28, 1909, liii, 726). Insanity is of particularly frequent occurrence in the foreign legion, in the African battalions and the *compagnies de discipline*. Volunteers furnish the largest number of the insane, and consequently the largest number of deserters and *disciplinaires*. Thus in a *compagnie de discipline*, Dr. Uzac has stated that half of the men were volunteers. In the eighteenth corps, out of 164 soldiers under sentence in the regiment, Professor Regis has found 64 conscripts and 100 volunteers, an enormous proportion considering that in a regiment the number of volunteers is very small in proportion to that of the conscripts. The fact is that some "volunteers" really do not enlist voluntarily, but are brought to the barracks by their parents like children being led to school. These are undisciplined, unbalanced young men of fantastic character, predisposed to insanity, in whom military life with its various demands at once causes hitherto latent insanity to become manifest. It is to remedy this state of affairs that the Congress of Alienists and Neurologists passed a resolution that no one should be allowed to enlist unless he produced from his family physician a certificate stating that he had not presented any morbid mental state. This certificate should be controlled by the recruiting physician, who should also examine the mental condition of the candidate before his admission. This has been done for a long time in Belgium. It would be advisable likewise that the prefects should give the military authorities the names of the conscripts who have been placed in an asylum, or whose lack of mental balance is well known, so that the attention of the military physician should be particularly drawn to such a recruit. Unfortunately, at the council of review, the conscripts are examined only physically, time being far too short for a mental examination; and even after enrolment many mental diseases remain unrecognized, their diagnosis demanding a special knowledge of psychiatry, which military physicians rarely possess. It is well recognized that the psychiatric instruction which is given to military physicians at present is insufficient and ought to be increased. Professor Regis even suggests that lectures should be organized to familiarize the officers with elementary ideas of psychiatry, so as to enable them to report to the physician the appearance of the first symptoms of psychoses in the soldiers.

Distribution of the Prizes of the Academy of Medicine

On December 14, the customary session for the distribution of prizes was held at the Academy of Medicine. The Audiffred prize, consisting of an annual income of $4,800 (24,000 francs) intended for the discoverer of a remedy, curative or preventive, effective against tuberculosis, naturally has not been awarded. The Academy merely presented $400 (2,000 francs) by way of encouragement to Dr. G. Moussu, professor in the veterinary school at Alfort, and C. Mantoux of Cannet for their works on the "Intradermal Tuberculin Reaction in Animals," and $100 (500 francs) to Dr. L. Rénon, professor agrégé at the Paris medical school, for his work, "Practical Treatment of Pulmonary Tuberculosis." The Chevallier prize of $1,200 (6,000 francs) for the author of the best French work published on the origin, development and treatment of pulmonary tuberculosis or other forms, was awarded to Dr. H. Gougerot of Paris for his work, "Non-Follicular Bacillosis." The Laborie prize of $1,000 (5,000 francs), offered for work marking a notable advance in the science of surgery, was awarded to Dr. P. Redard of Paris for his entire works on orthopedic surgery. The Herpin prize of $600 (3,000 francs) for the best work on nervous diseases, was awarded to Drs. P. Lejonne and J. Lhermitte of Paris for their work on "The Myopathy of the Aged." The Tarnier prize of $1,350 (6,750 francs) offered for the best work on gynecology, was awarded to Dr. J. L. Faure, professor agrégé at the Paris medical school, for his work on hysterectomy. The Meynot prize of $520 (2,600 francs), for the best work on the diseases of the eye, was awarded to Dr. A. F. Terrien of Paris for his works "Précis of Ophthalmology" and "Syphilis of the Eye and Appendages." The Itard prize of $480 (2,400 francs) for the best book on practical medicine or applied therapeutics, was awarded to Dr. L. Rénon, agrégé at the Paris medical school, for his "Practical Lectures on Diseases of the Heart and Lungs." The Barbier prize of $400 (2,000 francs) offered for complete means of cure for diseases at present generally considered incurable, was divided among the following: (1) Drs. G. Levaditi and J. Roché, for their work, "Syphilis: Experimentation, Microbiology, Diagnosis;" (2) Drs. P. Coyne, professor at the Bordeaux medical school, and B. Auché, professor agrégé at the same school, for their memoir on "Polyvalent Serum in Bacillary Dysentery." The Buignet prize, $300 (1,500 francs), for the best work on the application of physics or chemistry to medical science, was awarded to Dr. H. Guilleminot of

Paris for his entire works on the biologic action of the new radiations. The Bourceret prize, $240 (1,200 francs), offered for the best work on the circulation of the blood, was awarded to Dr. Léon Frédéricq, professor at the Liège medical school, for his entire works on the activity of the heart. The academy awarded, as usual, a certain number of less important prizes. The Guzman prize, consisting in an annual income of $265 (1,328 francs), offered for a really efficacious treatment for the more common organic diseases of the heart, was not awarded; neither was the Daudet prize, $200 (1,000 francs), offered for work on serotherapy in the treatment of malignant neoplasms. No memoir was presented for the Chevillon prize ($300, or 1,500 francs) offered for the best work on the treatment of cancer, for the Capuron prize ($200, or 1,000 francs) offered for work on the radio-activity of mineral waters, or for the Nativelle prize ($60, or 300 francs) for work on the extraction of the definite crystallized active principle of a medicinal substance.

Kneading of Bread by Machinery

The Council of Hygiene has had under consideration some interesting questions of the hygiene of bread, and in particular the advantages of the mechanical kneading of bread. The prefect of the Seine commissioned Professor Laveran to give the Council of Hygiene his opinion on the reality of the danger of infection through the consumption of bread made by tuberculous bakers, and on the measures which ought to be taken on the subject. Professor Laveran's experiments show that the temperature of 100 degrees, which, in bread properly baked, is always obtained even at the center of the loaf, is in the main sufficient to kill tubercle bacilli. The ordinary acidity of the dough is, moreover, favorable to the destruction of these bacilli. It does not follow, however, that tuberculous workmen are not a source of danger in bakeries. The tubercle bacilli killed by the baking of the bread become incapable of producing tuberculosis, but they are not therefore absolutely harmless. They may provoke local inflammation of the intestinal mucosa. Moreover, the bread may be infected after coming from the oven in the course of the manipulation it undergoes, or by the dust arising from the dry tuberculous sputum on the floor. Accordingly, Professor Laveran believes there is ground for calling attention to the danger from the presence of tuberculous bakers and to the necessity of taking preventive measures. The adoption of mechanical kneading, as a means of preventing the contamination of the bread by tuberculous workmen, is certainly to be advised, but according to Laveran, other measures also are required. The hygiene of Parisian bakeries leaves much to be desired, the basement bakeries being especially open to criticism. They are badly ventilated, their floors are extremely dirty, and, since it is not possible to drain away the dirty water after being used, the workmen, in order to avoid carrying water upstairs, make use of very dirty water to wash in. To encourage the use of kneading machinery, Professor Laveran recommends that electric power should be installed in all parts of the city as soon as possible, and that the rates for the use of electricity should be lowered.

A Medical Orchestra

A group of physicians in Paris have just decided to form a symphony society, to be known as the Medical Orchestra, and composed solely of physicians and medical students. Similar artistic groups are already in existence in London, Stockholm and Vienna.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 9, 1909.

Deaths of Professor Saemisch and Duke Theodor

As stated in a previous letter the founder, and for many years the head of the Bonn eye clinic, Professor Saemisch, died Nov. 29, aged 76. After serving for many years as assistant to the well-known ophthalmologist Professor Pagenstecher at Wiesbaden, he connected himself with the faculty at Bonn and became in 1867, professor extraordinary, and in 1873 regular professor of ophthalmology. His literary work was chiefly devoted to the investigation of external diseases of the eye and its results are published in the fourth volume of the large handbook of ophthalmology.

A second much better-known ophthalmologist, Duke Carl Theodor of Bavaria, died at Bad Creuth, November 30, of pneumonia. Duke Carl Theodor, like most princes, at first espoused the military profession. It was not until his thirtieth year that he began his scientific and medical studies. Already in 1872 he had secured such distinction in science that at the quadricentennial jubilee of the University of Munich he was given the title of Doctor of Medicine *honoris causa*. His first important work was done at the physiologic institute at Munich and treated of the influence of the temperature of the surrounding air on the excretion of carbon dioxid and the absorption of oxygen in a cat. The duke laid the foundation for his clinical studies of ophthalmology, which became his specialty, with the younger Rothmund. As a result of these studies there appeared several articles on the anatomy and pathology of the eye, especially the excellent monograph entitled, "A Contribution to the Pathologic Anatomy of the Eye in Kidney Disease." Carl Theodor pursued his further clinical studies with Prof. v. Arlt at Vienna, and Professor Horner at Zurich. About the middle of the eighties he began his practical work as ophthalmologist. He preferred the operative side of ophthalmology. The number of his cataract operations amounted to more than 3,000. As the result of his practical success as well as his winning personality, patients came to him at his clinics at Tegernsee and Munich from all classes. Our princely colleague also took part in the efforts of his professional brethren. He was one of the first to attach himself to the Leipsic league for securing the economic interests of the physicians of Germany. The duke found recognition on the part of physicians by his election to honorary membership in various societies.

Epidemic in the Friedrichsberg Insane Asylum at Hamburg

In the Friederichsberg insane asylum, November 29, 293 patients were attacked with diarrhea which resulted fatally in two debilitated subjects. All the other patients recovered after a few days. The attack was probably due to the use of food consisting of rice and bananas, and indeed it seems that the pathogenic substance was introduced during the filling of the portable dishes from the kettle in which it was cooked and only a portion of the contents was contaminated. A number of the other inmates of the institution who also ate of this food remained well. Bacteriologic examination of the food led to no result.

The Campaign Against Sleeping Sickness in Africa

The headquarters of the campaign against sleeping sickness in German East Africa has lately been transferred from Viktoria-See to Tanganyka on account of a number of cases which have broken out among Europeans. At Viktoria-See the sleeping sickness has ceased to make progress and no new cases have appeared among Europeans for some years. In the Schirati district the sanitary work is going on and the Muansa district has so far remained free.

The Imperial Insurance Bill

The efforts of the medical profession in Saxony with reference to the new insurance law have had a certain moral effect. Since the proposal was made by the *Deutsche medizinische Wochenschrift* that the medical faculties of Germany should declare themselves in unison with the resolutions of the Lübeck meeting of the medical association regarding the imperial insurance, two delegates of the medical faculty of Tübingen presented a memorial to the minister of the interior in which they described the "free choice of physicians" as it is carried out in Würtemberg, emphasized its advantages and prayed the department to work for the retention of the present excellent arrangements and for their introduction in other parts of Germany. The minister gave the delegates of the faculty the assurance that he was a warm friend of "free choice of physicians" and considered the existing arrangements between physicians and the societies of Würtemberg as very satisfactory. It is to be hoped that this open espousal of the desires of the medical profession by the minister will not be without influence on the present revision of the law in the federal council. At any rate the physicians have gained for their cause a valuable coadjutor in the Würtemberg minister.

Celebration of the Establishment of Forest Convalescent Stations

A few days ago there occurred a celebration of the tenth anniversary of the establishment of the forest convalescent station, at the department of education. The Berlin forest convalescent station was moreover the first of its kind and owed its origin to a proposition made by the Berlin physicians, W. Becher and R. Lennhoff on the occasion of the first international tuberculosis congress which met in Berlin in May, 1899. The forest stations were founded for the care of sick but not bedridden laborers. The state was to furnish for the use of the patients a part of the forest, the Red Cross was to contribute some of the barracks which had been provided for time of war, but were not used in time of peace. The Woman's Patriotic Association was to establish in these barracks a diet kitchen, and the railroad management was to permit the patients to use the cheap weekly workingmen's

tickets for their passage to and from the convalescent stations, and the Krankenkassen were to undertake the small expense of nursing and care. In this way the patients would be able to pass the whole day in the open air and return evenings to their homes. According to this plan the first convalescent station for men was erected at Berlin in May, 1900. Now the Popular Sanatorium Association of the Red Cross has seven convalescent stations at Berlin, two for men, two for women and three for children; one institution for men and one for women is opened during the winter. In the four stations for adults there has been so far cared for a total of 22,591 persons for 772,270 days. In the three children stations 7,439 children have been treated for 37,082 days. As there is no family insurance in the Berlin Krankenkassen the children are not provided with treatment by the Kassen physicians and the convalescent stations must assume the entire medical care. In addition to the Popular Sanatorium Association of the Red Cross some suburbs of Berlin have two women's convalescent stations, one children's station, one forest school, and a convalescent station for infants so that from all greater Berlin more than 2,000 persons can be cared for in these institutions at the same time. In the institutions for adults the daily expense for care is from 13 to 16 cents (55 to 75 pf.); in those for children 12 cents. The net cost of a day's care for adults varied in the various years between 12½ and 17 cents; for children, between 12 and 15 cents. Altogether the Krankenkassen have paid so far about $76,000 (315,000 marks), the poor authorities about $26,000, and the patients $16,000. Following the establishment of the Berlin institution about 100 similar stations have been established in Germany. Other countries have followed the example; in some of them the forest convalescent station forms the chief sort of institution for the care of tuberculosis.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Dec. 11, 1909.

The Transactions of the Union of Austrian Medical Councils

One of the most important papers read at this meeting of the medical councils (referred to last week) dealt with the question of insurance of medical men against accidents and against claims for alleged malpractice. The charges made by the general insurance companies are rather exorbitant in this country, so a movement has been initiated for an insurance system for medical men by medical men. The idea is to guarantee the admission of at least 1,000 doctors to the membership of a company on the understanding that they will be conceded special low rates. Another proposal is for a new company organized by doctors, the business to be extended to life-insurance also, without calculating or expecting any profit for the company. In this country the claims for damages on the basis of malpractice are increasing; although nearly all such cases were dismissed by the judges, still the expenses of the medical men were very substantial. This is also the reason why hospital doctors want to be insured by the hospital itself against claims arising out of their position as members of the staff.

A very animated discussion took place when the conflict between dental surgeons and dental technicians was arrived at. The conflict was explained in a previous letter (THE JOURNAL, Aug. 28, 1909, liii, 727). A resolution was adopted and addressed to the government, in which the "union" protests against the throwing open to lay persons of a part of medical science, either by law or by a compromise between dental surgeons and technical assistants. The union emphasizes the fact that only the universities are entitled to grant a medical diploma and implicate the right of practicing the whole or part of medicine.

Much interest is evoked by a paper dealing with the rates of taxes to be paid by the profession. Thus it was shown that a doctor has to pay at least two taxes from the same source. First, the *Erwerbsteuer* (tax for the permission to earn his living by practicing) amounts to about 1 per cent., but in some instances reaches 4 per cent. of the earned income. This depends on the value of the offices and outfit and income. The other tax is the *Einkommensteuer* or income tax, to be paid from the entire income, progressing from 1 per cent. gradually to 6 per cent. As a rule, the amount of the medical man's professional income is overestimated by the tax collectors; as the doctor has to "keep up appearances," he is rated at least 4 to 5 per cent. of his income. A suggestion to have the *Erwerbsteuer* abolished in compensation for the proposed obligation to render medical help whenever wanted, as stipulated by the new medical act under consideration, was forwarded to the parliamentary committee.

Jubilee of Professor Politzer

On December 9, Prof. Adam Politzer, whose name is familiar to all students of otology throughout the world, celebrated the fiftieth anniversary of the attainment of his doctor's degree. A festival was arranged by the Austrian Otologic Society, and the president, Professor Urbantschitsch, delivered the speech, and a wreath consisting of fifty golden laurel leaves, each bearing an important date of Politzer's career, was presented to the professor by the otologic department of the Poliklinik. The chief former assistant, Docent Alexander, came with all his assistants and numerous American, English, Japanese and other surgeons. Among the numerous marks of honor may be mentioned that the Otologic Section of the Royal Society of Medicine of England, of which Politzer is the only honorary member, had deputed Dr. Cheatle to congratulate the former, while the American Medical Association of Vienna was represented by its president, Dr. Stoewer. Politzer has answered in a very suggestive manner. He presented his unique library, containing the otologic contributions of the last half century, besides many old volumes and manuscripts on this subject, to the Vienna University, and granted a sum of $3,000 for research purposes. The University of Vienna, following an ancient custom, renewed the diploma of the scientist, and the act of handing over the new document to the venerable holder gave a welcome opportunity for the above-mentioned festivities. For forty-six years Politzer was lecturer on otology in the Vienna General Hospital. He has exerted an enormous influence on the course of modern otology owing to his fundamental anatomic and pathologic knowledge. Since retiring from active teaching, he has published the "History of Otology," and has been still working in private practice as vigorously as ever. His pupils are the chiefs of all ear departments in Austria and he keeps in constant touch with all of them, still controlling the progress of his specialty, and keeping abreast of all advances. He really deserves to be called a "grand old man."

Pharmacology

COCA-BOLA AND OXY-TONIC

Two Nostrums Exposed by the Chemists of the North Dakota Agricultural Experiment Station

[Exceedingly valuable work in the interests of public health is being done by some of the state agricultural experiment stations. One of the most virile of these institutions is that of North Dakota, whose commissioner, E. F. Ladd, has done yeoman service in the campaign against "patent medicine" and sophisticated foods. We reproduce below two articles by Mr. Ladd that have appeared in recent issues of the *Bulletin* of the Agricultural Experiment Station of North Dakota:]

COCA-BOLA

We have recently had occasion to examine a sample of Coca-Bola, a product labeled as having been produced by Charles L. Mitchell, M.D., Philadelphia, and the face label bears the following statement:

> Each ounce contains 0.71 grams of cocain. A chewing paste of leaves of the cocoa plant, combined with other valuable tonics.

The directions for use say coca-bola is made in the form of flat cakes or plugs divided into squares and should be used by chewing one of the small squares marked on the plug and swallowing the saliva. They further say it should be used at occasional intervals as needed throughout the day. To get its full effect it will be necessary to use several squares. They further say:

> Although a powerful muscular or nervous tonic, coca-bola has no evil after-effects, and hence is far superior to any other stimulant in the materia medica.

Now this information given out in the advertising which accompanies each package is, it would seem, intended to give the impression that this product is an entirely harmless one; in other words, that a preparation containing cocain as an active constituent, is to be generally recommended for use without any caution as to the harm that may come from forming a habit for cocain. They further say:

> A small portion chewed occasionally acts as a powerful tonic to the muscular and nervous system, enabling the chewer to perform additional labor, and also relieves fatigue and exhaustion without evil after-effects. It contains no injurious ingredients and is perfectly harmless.

So we might quote from the circular which is sent out by a man who claims to be a physician, urging, as it were, on the people the use of a product of this kind, which, as has clearly been shown, must in the end result in the formation of the cocain habit, if not in the complete demoralization and degradation of the individual himself.

The laws of North Dakota prohibit the sale of any compound or product in the state which contains cocain in any form. It further prohibits the refilling of a physician's prescription that contains cocain, and yet a product of this kind, it would seem from information that has been gathered, is sold directly to the consumer, although it is true the proprietor of the product maintains that it is now sold only to physicians. In a letter under date of Aug. 19, 1909, signed by Charles L. Mitchell, M.D., he says:

What little we sell now conforms strictly with the requirements of the United States Pure Food and Drug Law, and is sold only on special order of physicians and their prescriptions.

Under date of September 7, I called the attention of the proprietor to the fact that the laws of this state would not permit of the sale of such a preparation in North Dakota. In reply, I received a letter which is self explanatory, as follows:

September 13, 1909.

E. F. Ladd, North Dakota Agricultural College, Agricultural College, N. D.

Dear Sir: Your favor of September 7th duly received for which please accept my thanks. Owing to the "crank" legislation of many states we have discontinued the manufacture of *all* coca and cocain preparations. Any "fool" druggist of your state who gets or sells an old package of our coca-bola does it at his own risk, as necessarily, having been put out some time ago, there is *no guarantee*, and we will not protect him. The people are getting a little sense into their heads, however, *gradually*, and they will sometime realize that preparations of both coca and cocain have an honest and legitimate use by the medical profession. Your state law is silly, and on a par with the 9-foot bed sheet laws of Texas and Oklahoma. Of course, your duty is to enforce the law, not to criticise it. I can do that. I am,

Yours very truly,

Dict. by C. L. M. CHARLES L. MITCHELL, M.D.

A letter of this kind needs no comment, and a product of this kind, in the judgment of the writer, can only be sent out for malicious purposes and its sale is illegal in North Dakota. We warn the public against either handling the same or using the same, if they would avoid the formation of a serious drug habit and one that must result in positive injury to our people.

This product, put up in the form of a gum, would easily take the place—for one who had formed the habit for cocain—of tobacco; and it might be made to take the place of chewing gum with young people who would be entirely innocent of the intentional use of any such preparation, not knowing the evil effects that would come from its continued use.

In the judgment of the writer, no man who will allow his name to be connected with a scheme of this kind should be permitted to digrace the profession of medicine by using the title M.D.

[In a later issue of the North Dakota bulletin a comparatively recent recruit to the nostrum ranks—Oxy-Tonic—is described. The family likeness of this "patent medicine" to the older and much exploited Liquozone lends an added interest to Mr. Ladd's article:]

OXY-TONIC—WHAT IS IT?

What is it? It looks like, smells like, tastes like, and analyzes much like Liquozone.[1] Oxy-Tonic is produced and sold by the Oxy-Tonic Company, 200 Illinois street, Chicago. It is advertised as a tonic germicide, free from spirits or drugs of any description whatsoever. A sample, Lab. No. 1837, examined by this department by Mr. Ziefle, was labeled: "Oxy-Tonic, or Antiseptic, 'Pick-me-up,' for Internal and External Use." They say in their literature:

"There are no drugs whatever in this remedy. Oxy-Tonic, preferably so named because of its oxygen properties and tonic in its wonderful invigorating effects, is an oxidizing fluid of concentrated gaseous elements of an ozonous nature. Whether used as a medicine internally or as an antiseptic externally, proves not only harmless to the system but absolutely revitalizes all weakened cells and tissues, and is the only method by which complete purification of the blood may be accomplished."

[1. Liquozone is one of the many fakes exposed by Mr. Adams in the "Great American Fraud" series. It was shown that the nostrum was boomed by means of faked testimonials and that on analysis it was found to be ninety-nine per cent. water with small quantities of sulphuric and sulphurous acids.—ED.]

An analysis of the sample gave the following results:

Reaction	Acid	
Specific gravity	1.0436	
Total solids	.351	per cent.
Volatile solids	.541	per cent.
Fixed solids (ash)	.0191	per cent.
Total acidity (calculated as H_2SO_4)	.51007	per cent.
Sulphurous acid	.1377	per cent.
Sulphuric acid	.1633	per cent.

The sample also contained a trace of hydrochloric acid.

The blackening of the total solids was characteristic of the action of sulfuric acid on organic matter. When the solids were heated, copious fumes of sulphur trioxid were evolved. It is clearly evident, therefore, that Oxy-Tonic is not what its manufacturers would have the public believe; and that it is not possessed of oxygen properties, but rather of acid properties due to the presence of sulphurous acid and sulphuric acids; that sulphurous and sulphuric acid are recognized as drugs; and that it is not, as they say, of gaseous, oxidizing elements. They further say:

"This remedy is guaranteed as a positive specific in diphtheria cases."

Also:

"You may place your trust in Oxy-Tonic as a true kidney remedy; stimulates the nervous system, aids nutritive changes, reduces congestion, and is a sedative very soothing in its action, etc."

To quote further:

"All organic weaknesses, nervous debility, premature declining power, drains and kindred affections yield speedily to Oxy-Tonic. This is accomplished by the direct effects that Oxy-Tonic has on the blood through its vitalizing and oxygenating effects and the bringing about of a healthful, forceful, good, yet normal, circulation."

They also say:

"Oxy-Tonic of special interest to ladies. The benefits to be derived are marvelous. You can treat yourself at home, etc."

If we compare those statements and the analysis with the analysis and literature which was sent out by the Liquozone people, we shall recognize that the product is of the same class. They describe it as being produced from the same products and "the virtues of Oxy-Tonic are derived solely from oxygen and other gases." Then they say: "The process of blending these gases together under pressure, confined in water and gas-tight tanks, wherein the requisite amount of water has first been placed causing the same to absorb these gases, produces the germicidal qualities."

Our state [North Dakota] drug law says that a product is adulterated if it be an imitation of, or offered for sale under the name of, another article or if it be falsely labeled in any respect, with regard to its composition, properties, uses or place of manufacture, or if it bear any design which shall deceive or tend to deceive. And further: "It is adulterated if its strength, quality or purity falls below the professed standard under which it is sold."

They say:

"How can one medicine cure so many diseases? Only one conclusion can be drawn from this fact, viz., that there is one common cause for the different diseases, and that cause is the deadly MICROBE."

They further say:

"It matters not what may be the name of the disease, it has its origin in the microbe and can be cured by Oxy-Tonic which attacks and destroys not the name but the root of the cause."

They claim, therefore, repeatedly that their product is a cure, and that all diseases, whether blood poisoning, dyspepsia, heart trouble, liver complaint, neuralgia, lumbago, nervous prostration, insomnia, etc., all have one common cause, the microbe. It is ridiculous to consider such claims as these. They go farther and say with reference to their product that it contains "nothing but pure water impregnated with oxygen and other germicidal gases, and contains no alcohol, opiates, or drugs of any description."

Now, as a matter of fact, Oxy-Tonic contains no more oxygen than is natural to common water, and it contains no other germicidal gases, so far as we have been able to detect. It does contain sulphuric acid, and it is significant that at the close of their pamphlet they give a table of poisons and their antidotes. The first poison mentioned by them is the class of acids of which sulphuric is one of those named—the product which is present in Oxy-Tonic in larger proportion than any other ingredient besides water; and yet they say that the product is perfectly harmless.

In one place they name not less than forty-eight distinct diseases or ailments for which Oxy-Tonic is prescribed. In other words, it seems to be another "cure-all," good for consumption, scrofula, dyspepsia, liver and heart trouble, dysentery, Bright's disease, dropsy, neuralgias, sciatica and goat, hay fever and la grippe, salt rheum, tumors, sprains, bronchitis and tonsillitis, diphtheria, nerve weakness and insomnia, besides many others which are described throughout their pamphlet. Yet it is a drug, or at least contains drugs as defined by the U. S. P., but, nevertheless, it is described as being "as safe to drink as it is to drink pure water." Further on they add that in many cases patients appear to be worse after using the medicine. The cause is reaction; the medicine grappling the disease. Such is Oxy-Tonic the World's Greatest "Pick-Me-Up." Wondrous advertising; it leads one to feel that Barnum's claim that the American people like to be humbugged contains much of truth; at least they are not always able to discern the real truth in much cunningly worded advertising literature.

Fake Consumption Cures—The Bensonizer Treatment

[The following from the *Typographical Journal* indicates an important and encouraging fact, namely, that the public is slowly but surely waking up to the wiles of the quack and the nostrum vender. The attitude that the lay journal takes on the subject of cure-alls demonstrates the change that public opinion has undergone in the past few years. The "cure" here spoken of—the Bensonizer Treatment—is but one of the many "consumption cure" schemes.]

Alleged "cures" for almost all sorts of diseases are being continually placed before the public, and the more fearful the malady the greater the number of "cures." In this connection, we print the following item:

Washington, D. C., November 10.—It is stated here that the medical department of the United States navy is about to look into the merits of a cure for consumption discovered by C. P. Benson, of Texas, with a view to its adoption. The attention of high government officials was attracted to this cure through the remarkably favorable results shown at the tuberculosis colony at the Printers Home at Colorado Springs, where seemingly hopeless victims of consumption were restored to health.

The above is entirely misleading, so far as it mentions the Union Printers Home. The Benson method has been rejected by the trustees of the institution, and the statement made is erroneous throughout. The home superintendent asserts that there is only one known case where the Benson treatment has been used by a home resident, and then it was given a trial subsequent to his departure from the institution. The former resident died at a later date in Denver, Colo. So much for the "remarkably favorable results" derived from the Benson treatment by those domiciled at the home.

Several experiments have been made at the Union Printers Home with so-called "cures" for consumption, but they have never accomplished any favorable results. The officials of the institution are not experimenting with "heal-alls" of any description, and feel that the methods employed by fakirs in their efforts to delude tuberculosis sufferers should be denounced by all sensible persons.

Correspondence

Psychiatry in Munich

To the Editor:—The *Fortbildungs* or "extension" course in psychiatry given at the University of Munich, Bavaria, is unequaled in its advantages for men interested in this branch.

At the head of it is Professor Kraepelin, who was induced to come from Heidelberg to Munich by a *carte blanche* offer of an opportunity to have ideal conditions created. The "klinik" was built and equipped to meet his views and in construction and arrangement, both for treating insanity and teaching psychiatry, is without a rival.

Alzheimer, one of the foremost brain histologists, teaches his subject not only in a complete but in a fascinating manner. Liepman, of Berlin, gave this year a course on "Aphasia, Apraxia and Agnosia," illuminating this difficult subject by the clear presentation of principles and of the findings in a most remarkable series of cases, both ante-mortem and post-mortem. He seems to have gone a step farther than Marie in blazing a path through this as yet incompletely explored field.

I would be glad if I had time and you had space to enlarge further—to speak of the valuable work of Kattwinkel in clinical demonstrations: Plant in the "Wassermann" researches, which have elucidated a whole group of cases of juvenile "paresis;" of Brodman's embryologic studies of the layers of the cortex; of Isserlin's presentation of hypnotism, psychotherapy, etc.; Ruedin's studies in degeneracy and medical jurisprudence of insanity; and Weiler's work in elaboration of apparatus and appliances of all sorts for reaction experiments.

The whole is permeated by Kraepelin's masterful spirit, uniting as he does in himself, the scientist, the humanitarian and the sincere enthusiasm of the gifted educator.

This year 60 or 70 men and 2 or 3 women from all parts of the world daily attended the course, which involved four to eight hours of closest application (especially for non-Germans).

RICHARD DEWEY, Wauwatosa, Wis.

Credit to an Author

To the Editor:—I regret to notice in the new edition of my work on the appendix under title "Appendicitis and Other Diseases of the Vermiform Appendix," that in Chapter 12, on "The Leucocytes in Appendicitis," no credit is given to Dr. Charles E. Simon of this city, who in this chapter embodies his own experiences and wrote it for me as it stands. May I ask you to allow me to rectify an unintentional error through THE JOURNAL.

HOWARD A. KELLY, Baltimore.

Latin Humbug

To the Editor:—The World's Work for November published a letter telling of a case in which a physician's prescription, written in abbreviated Latin, was filled from a bottle of medicine (evidently proprietary), the price of which was $1; but for a quarter of it the druggist charged 60 cents. The editor then asserted that the use of Latin in sciences, medicine and law fosters quackery, hampers the dissemination of knowledge, and that the use of English in medicine would result in a decrease of the drug habit. The editor declined to print a reply which I sent, saying that "It is an infernal shame that . . . we should still be in subjection to medieval priests and scholars in naming the simplest flower or the simplest medicine;" and that he knew that the English could be used with much greater precision than the Latin. If you think my reply to the editorial worth printing, I am enclosing it for that purpose.

HENRY B. HEMENWAY, Evanston, Ill.

The following is an abstract of Dr. Hemenway's letter to *The World's Work:*

The World's Work for November, 1909, contains a short article on "Latin Humbug," which is so pernicious and misleading in every line that it deserves a reply, particularly inasmuch as it apparently has the sanction of the editor, for he has not made a single adverse comment. To one who is informed it seems apparent that the letter in question was really written in the aid of the proprietary medicine business, which is to-day smarting under the renewal of scientific medication.

The Latin language has long been the medium for exchange of thought in the scientific world. It cannot be displaced without a loss of exactness. A growing language lacks exactness because the same word differs in meaning from time to time. Colloquialisms obscure the meaning.

The unscientific man does not realize the need for exactness. Names of insects, animals and plants differ widely in different parts of the same country, and the same common name in one section means one thing, and in another locality it is used to designate a very different form. Take for example the common wintergreen, known scientifically as *Gaultheria procumbens.* It is known in different sections of the United States as the teaberry, checkerberry, partridgeberry, and boxberry. The *Mitchella repens,* a plant belonging to a very different family, is also known as the partridgeberry. The common name, "wakerobin," is used in one section to designate the *Trillium grandiflorum,* and in another it means *the T. cernuum.* Numerous illustrations might be given. On the other hand, scientific names, that is, Latin names, indicate the same object, not only in this country, but also in all

parts of the world. Not only so, but the scientific name indicates to the educated man the nature of the plant. The *Mitchella repens* is a creeping plant, for example. Further, the Latin name helps the scientific man to place the specimen, in its proper family, or group. Suppose, for example, that he is reading a German work in which a certain plant is mentioned by its common name, and some newly recognized property is mentioned. The common name means little, if he is not familiar with the plant in question. The Latin name is definite, and he may at once know that the plant is not found in America. The name, however, calls to his attention the fact that he has in a neighboring field found a plant closely related to the German species. He may then investigate, and find that the American plant has valuable properties which have previously been overlooked. The *Asclepias* genus is large, and widely distributed. Some of the plants have long been used in medicine; but who would naturally connect in thought the names commonly used to designate different species, such as "milkweed," "silkweed," and "pleurisy-root" or "butterfly-weed?" There are other kinds of "milkweed," but when I am told that some species of *Asclepias* may be profitably used for the production of rubber, I am prepared to find the plant with the least possible delay.

The same facts are applicable to medicine as to other sciences. A Latin prescription is definite, if properly written, in all lands. If a patient is told to get some "antiseptic solution," one druggist may give him a solution of the corrosive chlorid of mercury, another of formaldehyd, and another something else. If the prescription calls for Liquor antisepticus the druggist must give a solution of known, and definite, composition, and the patient should get the same in New York, Boston, Chicago, New Orleans or San Francisco.

There should be no secrecy in medicine, but uneducated persons should not attempt to prescribe poisons, for themselves or others. Any one who knows enough of the action of drugs and of normal and diseased conditions of the body to enable him to prescribe properly, will have no difficulty with Latin prescriptions.

Just as plants often have many common names, so drugs have various trade names. These trade names are generally catchy. "Hexamethylinamina" indicates the chemical composition of a certain official drug. For this article one firm has copyrighted "aminoform," others "urotropin," "formin," "cystogen," etc. If formin is called for, the druggist is expected to give that particular firm's product which bears that trade name. Manufacturers, or rather, the firms which put this drug up under their peculiar name, put on also a fictitious price. If the official name is used the pharmacist is simply expected to dispense a pure article. If trade names are used he must load his shelves with half a dozen firms' brands, and his stock will not be as fresh.

Proprietary mixtures, of uncertain purity and value, have been unduly lauded to the medical profession. It recently came to the attention of the profession that one of the large importing firms were paying exorbitantly for physicians' endorsements, without regard to the standing of the writer. Physicians were writing prescriptions for mixtures, and so specifying makers that the retail pharmacist was largely driven out of work. Next it was found that physicians were becoming less expert in the use of drugs for healing. There is now a strong propaganda for the return to definite scientific medicine. It is realized that there is no essential difference between the so-called "ethical proprietary" and the "patent" nostrum. The propaganda is hurting the proprietary manufacturers, and they are trying to check it. Realizing that they are using the physicians simply as advertising agents without pay, and that their chief profits come from the sales direct to the laity, these manufacturers urge that the prescription must always be written so that the patient may read it. That is not a disinterested argument. They want to sell in original packages, so that the label will act as a further advertisement.

The dropping of Latin from the law would not be of any advantage. The terms used have a definite meaning, which in many instances would take full sentences to express without the Latin. As used to-day they are practically Anglicised, as for instance, such words as "summons," "subpoena," "capias," etc.

Miscellany

Diseases Associated with Thyroid Changes.—A great variety of diseases are associated with or accompanied by noticeable thyroid changes. Thus rickets, lymphatism, chlorosis, cretinoid states and osteomalacia (?) are practically always associated with anatomical changes in the thyroid. Many of the prolonged infectious diseases, as lues, typhoid fever, influenza, acute articular rheumatism and tuberculosis, are frequently associated with or followed by thyroid hyperplasia. In individuals with adenoids and enlarged tonsils (lymphatism) (?), in abnormally fat children and in adiposis dolorosa, the association is not infrequent. In conditions in which mental and nervous fatigue have lasted for prolonged periods of time, as in neurasthenia, and in prolonged mental states produced by worry, shock, anxiety, overwork, etc., thyroid changes are frequently observed. Also there is a particular association of thyroid changes with the systemic changes taking place at puberty; with the menstrual function; with pregnancy and lactation, and with the menopause. Lastly, thyroid changes are perhaps most frequently seen in the poorly fed and poorly nourished young (puppies, lambs, calves and children).—D. Marine and C. H. Lenhart, in *Archives of Internal Medicine.*

Instructions Regarding Care of the Tuberculous.—When a tuberculous person vacates a room or a house, either because of removal to another locality or from death, the local health officer should at once disinfect the rooms occupied by the tuberculous person, before they are occupied by any other person. He should, moreover, ascertain the change of address of the tuberculous person in case of removal, and report the same to the State Board of Health, so that the case may be kept under the supervision of proper health authorities.—*Public Health*, Lansing, Mich.

The Public Service

Medical Corps of the Navy

Changes for the week ended Dec. 25, 1909:

Lynch, J. J., acting asst.-surgeon, ordered to duty at the Naval Hospital, Boston.

Huntington, E. O., surgeon, detached from the Naval Recruiting Station, Chattanooga, Tenn., and ordered to the *Lancaster.*

Fauntleroy, A. M., P. A. surgeon, detached from temporary duty on board the *Lancaster* and ordered to continue other duties.

Donelson, M., asst.-surgeon, detached from the Naval Recruiting Station, Nashville, Tenn., and ordered to the Naval Recruiting Station, Chattanooga, Tenn.

Bertolette, D. N., medical director, detached from duty as a member of the Naval Retiring Board, Washington, D. C., and ordered to continue other duties.

Orvis, R. T., surgeon, detached from the Naval Hospital, New York, and ordered to the *New Hampshire.*

Oman, C. M., P. A. surgeon, detached from the *New Hampshire* and ordered to the Naval Hospital, New York.

Medical Department of the Army

Changes for the week ended Dec. 25, 1909:

Woodson, Robert S., major, relieved from duty at Fort Hamilton, N. Y., and ordered to Fort Adams, R. I., for duty.

Fuller, Leigh A., major, relieved from duty at Fort Adams, R. I., and ordered to Fort Hamilton, N. Y., for duty.

Edie, Guy L., lieut. col., detailed member of examing board during examination of Major Ogden Rafferty and Major James D. Glennan, Medical Corps, vice Lieut. Col. Jefferson R. Kean, Medical Corps, who will continue as a member of board for all other purposes.

Bradley, John R., 1st lieut., M. R. C., recently appointed, is ordered to active duty, and will proceed on January 1, to Fort Leavenworth, Kan., for duty.

Murtagh, John A., capt., granted 10 days' leave of absence.

Dear, William R., 1st lieut., left Fort Sheridan, Ill. on 10 day's leave of absence.

Fauntleroy, P. C., major, granted 10 days' leave of absence.

McMillan, C. W., 1st lieut., M. R. C., granted 3 months' leave, to take effect about January 22, 1910.

Birmingham, Harry P., lieut. col.; Darnall, Carl I., major; Reynolds, Charles R., major, appointed members of a board for the examination of such candidates as may be authorized to appear before it to determine their physical fitness for appointment as 2nd Lieuts. in the Army.

Kieruff, H. Newton, 1st lieut., M. R. C., granted 20 days' leave of absence with permission to apply for 10 days extension.

Hansell, Haywood S., capt., ordered to proceed from Fort Snelling, Minn., to Fort Assiniboine, Mont., not later than Dec. 29, 1909, for temporary duty at that post.

Gregory, J. C., capt., left Jefferson Barracks, Mo., for 10 days' leave of absence.

Gandy, Chas. M., lieut. col., left West Point, N. Y., en route to Washington, D. C., for duty on examining board for promotion of medical officers.

Philips, Harry F., 1st lieut., M. R. C., left Fort Sam Houston, Tex., on 10 days' leave of absence.

Public Health and Marine-Hospital Service

Changes for the week ended Dec. 22, 1909:

Trask, J. W., asst. surgeon-general, granted 2 days' leave of absence from December 17, and 3½ days' leave from Dec. 21, 1909.

Irwin, Fairfax, surgeon, granted 5 days' leave of absence from Dec. 26, 1909. On expiration of present leave of absence, directed to proceed to Yokohama, Japan, for duty in office of the Consul-General.

Wasdin, Eugene, surgeon. Granted 1 month's leave of absence from Dec. 22, 1909, on account of sickness.

Stoner, J. B., surgeon, granted 4 days' leave of absence en route to station.

Cummings, Hugh S., P. A. surgeon, on the arrival of Surgeon Fairfax Irwin, directed to proceed to San Francisco, and report arrival to bureau by wire for further orders.

Billings, W. C., P. A. surgeon, granted 14 days' leave of absence from Dec. 23, 1909.

Corput, G. M., P. A. surgeon, leave granted Dec. 10, 1909, for 16 days from Dec. 15, 1909, amended to read 16 days from Dec. 27, 1909.

Fox, Carroll, P. A. surgeon, granted 5 days' leave of absence from Dec. 27, 1909.

Earle, B. H., P. A. surgeon, granted 15 days' leave of absence from Dec. 24, 1909.

Wollenberg, R. A. C., asst.-surgeon, granted 1 month's leave of absence from Dec. 22, 1909.

Knight, C. P., acting asst.-surgeon, granted 60 days' leave of absence, without pay, from Dec. 18, 1909.

Safford, M. V., acting asst.-surgeon, granted 4 days' leave of absence from Dec. 14, 1909.

Schuster, B. L., acting asst.-surgeon, granted 10 days' leave of absence from Dec. 18, 1909.

Story, H. C., acting asst.-surgeon, granted 8 days' leave of absence, without pay, from Nov. 12, 1909.

Tappan, J. W., acting asst.-surgeon, granted 4 days' leave of absence from Dec. 23, 1909.

Walkley, W. S., acting asst.-surgeon, granted 21 days' leave of absence from Dec. 10, 1909.

Wallace, C. R., acting asst.-surgeon, granted 5½ days' leave of absence from Dec. 21, 1909.

Health Reports

The following have been reported to the Public Health Service, during the week ended Dec. 24, 1909:

SMALLPOX—UNITED STATES

Kansas: Coffeyville, Dec. 4-11, 1 case.
Maryland: Baltimore, Dec. 4-11, 1 case.
North Carolina (12 counties), Sept. 1-30, 60 cases; Charlotte, Dec. 4-11, 5 cases.
Ohio: Dayton, Dec. 4-11, 2 cases.
Tennessee: Chattanooga, Nov. 6-13, 3 cases; Dowelltown, Nov. 27-Dec. 4, 1 case.

SMALLPOX,—INSULAR

Philippine Islands: Manila, Oct. 23-30, 1 case.

SMALLPOX—FOREIGN

Brazil: Bahia, Nov. 5-19, 48 cases, 38 deaths.
Egypt: Alexandria, Sept. 1-30, 33 cases, 2 deaths; Cairo, Nov. 4-11, 2 cases.
France: Paris, Nov. 13-27, 3 cases, 1 death.
Germany: Munich, Nov. 7-13, 1 case.
Greece: Athens, Oct. 30-Nov. 6, 3 deaths.
India: Bombay, Nov. 9-23, 8 deaths; Calcutta, Oct. 30-Nov. 6, 1 death.
Italy, general, Nov. 21-28, 35 cases; Naples, 15 cases, 2 deaths.
Java: Batavia, Oct. 30-Nov. 6, 2 cases.
Mexico: Aguascalientes, Nov. 27-Dec. 4, 1 death; Chihuahua, Nov. 22-29, 2 deaths.
Netherlands: Amsterdam, Nov. 29-Dec. 4, 1 case, on a vessel.
Portugal: Lisbon, Oct. 9-30, 17 cases; Nov. 20-27, 11 cases.
Russia: Moscow, Oct. 9-23, 8 cases, 1 death; Nov. 6-13, 7 cases, 1 death; Odessa, Oct. 23-30, 7 cases, 4 deaths; Nov. 13-20, 11 cases, 3 deaths; Riga, Oct. 16-23, 2 cases; Nov. 13-20, 8 cases; St. Petersburg, 52 cases, 16 deaths.
Spain: Almeria, Oct. 1-31, 3 deaths; Barcelona, Nov. 22-29, 1 death.

YELLOW FEVER

Brazil: Manaos, Nov. 13-20, 1 death; Para, Nov. 20-27, 6 cases, 4 deaths.
Venezuela: Caracas, Nov. 13-20, 1 case.

CHOLERA—INSULAR

Philippine Islands: Manila, Oct. 23-30, 24 cases, 20 deaths; Provinces, 157 cases, 116 deaths.

CHOLERA—FOREIGN

China: Amoy, Oct. 23-30, 30 deaths.
India: Bombay, Nov. 9-23, 13 deaths; Calcutta, Oct. 30-Nov. 13, 16 deaths; Rangoon, Oct. 30-Nov. 6, 7 deaths.
Japan: Kadono district, Oct. 11-18, 187 cases, 76 deaths; Moji, Nov. 17, 1 death.
Russia: Moscow, Oct. 9-23, 3 cases, 2 deaths; Riga, Oct. 16-23, 4 cases.
Siam: Bangkok, Oct. 1-31, 3 cases, 3 deaths.
Siberia: Vladivostok, Oct. 21-28, 7 cases, 4 deaths; Oct. 28-Nov. 4, 4 cases, 4 deaths.

PLAGUE

Brazil: Bahia, Nov. 5-19, 7 cases, 5 deaths.
China: Amoy, Oct. 23-30, 40 deaths.
India, general, Oct. 30-Nov. 6, 5,725 cases, 4,479 deaths; Bombay, Nov. 9-23, 9 deaths; Calcutta, Oct. 30-Nov. 13, 10 deaths; Rangoon, Oct. 30-Nov. 6, 3 deaths.
Siam: Bangkok, Oct. 1-31, 8 cases, 7 deaths.
Zanzibar: Zanzibar, Oct. 31-Nov. 7, 1 death.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, January 11. Chairman, Dr. W. H. Sanders.
ARIZONA: Phoenix, January 3-4. Sec., Dr. Ancil Martin.
COLORADO: State Capitol, Denver, January 4. Sec., Dr. S. D. VanMeter, 1723 Tremont Place.
DISTRICT OF COLUMBIA: Washington, January 10. Sec., Dr. George C. Ober, 210 B Street, S. E.
ILLINOIS: Coliseum Annex, Chicago, January 19-21. Sec., Dr. J. A. Egan, Springfield.
INDIANA: Room 120, State House, Indianapolis, January 11. Sec., Dr. W. T. Gott.
MINNESOTA: State University, Minneapolis, January 4. Sec., Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.
NEW HAMPSHIRE: State Library Bldg., Concord, January 4-5. Regent, Mr. H. C. Morrison.
NEW MEXICO: Santa Fe, January 10. Sec., Dr. J. A. Massie.
NORTH DAKOTA: Grand Forks, January 4-6. Sec., Dr. H. M. Wheeler.
OKLAHOMA: Ione Hotel, Guthrie, January 11. Sec., Dr. Frank P. Davis, Enid.
RHODE ISLAND: Room 313, State House, Providence, January 6-7. Sec., Dr. Gardner T. Swarts.
SOUTH DAKOTA: Sioux Falls, January 12-13. Sec., Dr. F. W. Freyberg, Mitchell.
UTAH: State Building., Salt Lake City, January 3. Sec., Dr. G. F. Harding, 310 Templeton Bldg.
VERMONT: Montpelier, January 11-13. Sec., Dr. W. Scott Nay, Underhill.
WASHINGTON: Spokane, January 4. Sec., Dr. J. Clinton McFadden, 503-5 People's Bank Bldg., Seattle.
WISCONSIN: Milwaukee, January 11. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

Arizona October Report

Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Oct. 4-5, 1909. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 9, all of whom passed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1909)	77.4
Atlanta College of Physicians and Surgeons	(1901)	78.6
Bennett Medical College	(1907)	76.9
State University of Iowa, Homeopathic College	(1908)	76.6
University of Louisville	(1898)	76.8
Hospital College of Medicine, Louisville	(1903)	75
University of Michigan, College of Medicine	(1909)	79.8
Detroit Medical College	(1880)	82
Medical College of South Carolina	(1905)	87.9

Connecticut Eclectic August and November Reports

Dr. Thomas S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports that at a special meeting held at New Haven, Aug. 10, 1909, 1 candidate, a graduate of the New York Eclectic Medical College, 1909, was licensed through reciprocity with New York. He also reports a written examination held at New Haven, Nov. 9, 1909, including 10 subjects of 10 questions each, the percentage required to pass being 75. Only 1 candidate, a graduate of the New York Eclectic Medical College, 1909, was examined, who passed with a grade of 75 per cent.

New Jersey June and October Reports

Dr. H. G. Norton, secretary of the State Board of Medical Examiners of New Jersey, reports the written examinations held at Trenton, June 15-16, and Oct. 19-20, 1909. The total number of subjects examined in was 9; total number of questions asked, 135; percentage required to pass, 75.

At the examination held June 15-16, the total number of candidates examined was 56, of whom 47 passed and 9 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Louisville	(1906)	78.7
College of Phys. and Surg., Baltimore (1908) 81.7;	(1909)	81.7
Johns Hopkins University	(1907)	85.1
Baltimore Medical College (1907) 77.9; (1909) 87.4, 88.8		
New York Homeopathic Medical College and Hosp.	(1907)	82
University and Bellevue Hospital Medical College	(1908)	82.5
Albany Medical College	(1902)	78.5
New York University Medical College	(1880)	80.8
Woman's Medical College of Pennsylvania	(1909)	81.5
Jefferson Medical College (1895) 80.5; (1908) 75.1, 81.5, 82.5, 82.5; (1909) 83.5, 84.1, 84.7, 85 86.6, 87.5, 89.1		
University of Pennsylvania (1892) 79.3; (1908) 84.6, 85.1, 86.2; (1909) 81.4, 84, 84.2, 84.4, 85, 85.5, 91.2		
Hahnemann Medical College, Philadelphia (1905) 75, 76.6; (1908) 79.6; (1909) 76.5, 76.8, 80.1		
Medico-Chirurgical College, Philadelphia (1901) 82.1; (1907) 75.8; (1909) 83.9, 85.8		
University of Toronto, Ontario	(1906)	84.2
McGill University, Quebec	(1909)	89.6

College	Year Grad.	Per Cent.
FAILED		
University of California	(1905)	73.2
Howard University, Washington	(1908)	71.5
Kentucky School of Medicine	(1906)	65.5
Baltimore University	(1903)	67.8
Johns Hopkins University	(1909)	*
University of Michigan, College of Medicine	(1880)	67.4
New York University Medical College	(1880)	61.2
University of Naples, Italy	(1906)	67.5, 69.9

At the examination held October 19-20, the total number of candidates examined was 34, of whom 29 passed and 5 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University, Washington	(1908)	77.2
College of Phys. and Surg., Baltimore	(1908) 75.2; (1909)	78.3
Johns Hopkins University	(1909)	84.2
College of Physicians and Surgeons, Boston	(1909)	79.6
Cornell University Medical College	(1908) 78.3; (1909)	87.6, 87.8
Columbia University, College of Physicians and Surgeons	(1907) 88.7; (1909)	88
University of Buffalo	(1884)	85.2
New York University, Medical College	(1881)	82.7
University of Pennsylvania	(1908)	82.1, 87
Hahnemann Medical College, Philadelphia	(1899)	75
Medico-Chirurgical College, Philadelphia	(1903) 75; (1908) 81.5, 86.4; (1909)	85.1
Jefferson Medical College	(1908) 77.3, 88.3; (1909)	81.9
Vanderbilt University	(1908)	88.5
University of Vermont	(1891) 75; (1909)	80.8
Western University, London, Ontario	(1909)	83.8
University of Naples, Italy	(1906)	75, 75
University of Geneva, Switzerland	(1902)	81.5
FAILED		
Kentucky School of Medicine	(1906)	67.6
University of Michigan, College of Med. and Surg.	(1880)	65.8
Jefferson Medical College	(1874)	65.4
Hahnemann Medical College, Philadelphia	(1908)	70.6
University of Naples, Italy	(1896)	69.3

* Percentage not given.

Maine November Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Portland, Nov. 9-10, 1909. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 27, of whom 22 passed and 5 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Atlantic Medical College, Baltimore	(1909)	78.6
Baltimore Medical College	(1907)	83.8
Maryland Med. College	(1905) 77.4; (1908) 82.7; (1909)	75.5
Medical School of Maine	(1908) 88; (1909)	78.2, 82.3
Harvard Medical School	(1892) 90.2; (1909)	84.3
Boston University	(1909)	84.5
Tufts College Medical School	(1907) 82.1; (1909)	82.2, 89, 90.3
College of Physicians and Surgeons, Boston	(1908)	77.2
University of Minnesota, Homeopathic College	(1908)	82.6
Dartmouth Medical School	(1909)	87.2
New York University Medical College	(1884)	75.2
Jefferson Medical College	(1909)	80.4
Laval University, Canada	(1908)	77.2
University of Toronto, Ontario	(1900)	79.7
FAILED		
Atlantic Medical College, Baltimore	(1909)	*68.4
College of Physicians and Surgeons, Boston	(1908)	**69
Laval University, Canada	(1903)	*69.9
Bishop College, Montreal	(1905)	*73.1
University of Palermo, Italy	(1884)	68.6

College	Year Grad.	Reciprocity with.
LICENSED THROUGH RECIPROCITY		
University of Vermont	(2, 1904) (1909)	Vermont

* Second examination in 1909.
** Third examination in 1909.

Montana October Report

Dr. William C. Riddell, secretary of the Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 5-7, 1909. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 51, of whom 34 passed and 17 failed. The following colleges were represented:

College	Year Grad.	Total No. Examined.
PASSED		
Hahnemann Medical College of the Pacific	(1909)	1
University of California	(1896)	1
George Washington University	(1906)	1
Northwestern Univ. Med. School	(1903) (2, 1907) (1908)	4
Hahnemann Med. College and Hospital, Chicago	(1896)	1
Rush Medical College	(1905) (1907)	2
College of Phys. and Surg., Chicago	(1902) (1908)	2
American Medical Missionary College	(1906)	1
Drake University, College of Medicine	(1909)	1
Kentucky School of Medicine	(1906)	1
College of Phys and Surg., Baltimore	(1908) (1909)	2
University of Michigan, College of Medicine	(1909)	3
Hamline University	(1906)	1
Barnes Medical College	(1895)	3
Washington University, St. Louis	(1904)	1
Beaumont Hospital Medical College	(1892)	1
Geneva Medical College, New York	(1867)	1
Medical College of Ohio	(1903)	1
Willamette University	(1909)	1
Jefferson Medical College	(2, 1904) (2, 1909)	4
Milwaukee Medical College	(1908)	1
McGill University, Canada	(1901) (1909)	2

College	Year Grad.	Per Cent.
FAILED		
Chicago Homeopathic Medical College	(1897)	73.3
American Medical Missionary College	(1904)	71.5
Chicago College of Medicine and Surgery	(1908)	71.7
Illinois Medical College	(1900)	72.4
Keokuk Med. College, College of Phys. and Surg.	(1908)	62.8
St. Louis University	(1909)	74.1
University Medical College, Kansas City	(1907)	71.7
Kansas City Hahnemann Medical College	(1909)	73.4
Barnes Medical College	(1899) 71.1; (1904)	71.6
University of Kansas City	(1882)	57.3
Kansas City Medical College	(1889)	64.2
Marion Sims Beaumont Medical College	(1903)	50
Columbia University, College of Phys. and Surg.	(1908)	70.8
Milwaukee Medical College	(1907)	70
University of Toronto, Ontario	(1909)	71.9
Imperial Royal University, Prague, Austria	(1890)	67.8

Nevada November Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 1-2, 1909. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, San Francisco	(1909)	87
University of California	(1909)	85.3

New Mexico October Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, Oct. 11-12, 1909. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 1 passed and 3 failed. Twenty-eight candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Memphis Hospital Medical College	(1901)	76.8
FAILED		
Memphis Hospital Medical College	(1908)	63.7
Gate City Medical College	(1904) 62.2; (1907)	40.2

College	Year of Grad.
LICENSED ON CREDENTIALS	
Georgetown University	(1905)
Howard University	(1907)
Rush Medical College	(1870) (1901)
Bennett Medical College	(1906)
Kentucky School of Medicine	(1898) (1900) (1907)
University of Louisville	(1909)
Louisville Medical College	(1893) (1901) (1909)
Tulane University of Louisiana	(1903)
Maryland Medical College	(1903)
University of Maryland	(1895)
Grand Rapids Medical College	(1900)
Kansas City Medical College	(1900)
Washington University, St. Louis	(1892)
Barnes Medical College	(1894)
Beaumont Hospital Medical College, St. Louis	(1901)
Niagara University, Buffalo	(1896)
Cincinnati College of Medicine and Surgery	(1870)
Eclectic Medical Institute, Cincinnati	(1909)
Miami Medical College	(1897)
Starling Medical College	(1903)
Jefferson Medical College	(1906)
Hahnemann Medical College, Philadelphia	(1888)
Vanderbilt University	(1888)

Wyoming October Report

Dr. S. B. Miller, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, Oct. 20-22, 1909. The number of subjects examined in, 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Denver and Gross College of Medicine	(1906)	81.7
Northwestern Univ. Med. School	(1908) 78.6; (1909)	82.5
Geneva Medical College, New York	(1867)	75
Jefferson Medical College	(1906)	82.4

Book Notices

TUBERCULOSIS. A Treatise by American Authors on Its Etiology, Pathology, Frequency, Semeiology, Diagnosis, Prognosis, Prevention and Treatment. Edited by Arnold C. Klebs, M.D. Cloth. Pp. 939, with 3 colored plates and 243 text illustrations. Price, $6. New York: D. Appleton and Company, 1909.

So wide-spread is the present-day interest in tuberculosis, even among the laity, that a work such as this one, dealing with the subject from a practical point of view, with emphasis on the details of treatment and diagnosis, is certainly timely. That there has been an effort made to bring the book up to date is seen by the addenda to the articles of several of the writers, including summaries of some of the more important facts brought out at the recent International Congress on Tuberculosis at Washington. The various articles are contributed by men eminently qualified by experience and special training to speak with authority in their special subjects. From such men as Lawrason Brown, Baldwin, Hektoen and Ravenel, not to mention others we expect only the best and are not disappointed. Hektoen's brief but clean-cut discussion of tubercle and morbid anatomy, and Brown's detailed account of specific treatment are especially worthy of comment. To Dr. Charles L. Minor of Asheville has fallen the task of handling the important topic of symptomatology and diagnosis. His thorough familiarity with the practical aspects of pulmonary tuberculosis is clearly seen, and his contribution, covering nearly one-third of the text of the entire book, is valuable. In fact, he and two others, Knopf and Brown, have written one-half of the book and have done their work well. It goes without saying that few are better qualified to discuss public measures in the prophylaxis of tuberculosis than Dr. Knopf. While these few are mentioned by name, it is not to be inferred that the other articles are not praiseworthy; most of them are. Brief but good discussions of surgical tuberculosis are included in some seventy pages, the writers being McArthur of Chicago and Freeman of Denver. We wish we did not feel that the names of well-known men had been used for the purpose of adding prestige to the book and of increasing its sales to the unwary, who may imagine that they are buying a work containing valued contributions by these well-known men. Osler, Trudeau, Biggs and von Pirquet are attractive names on the publisher's advertisement, but he who buys because of the attractiveness of these names may be disappointed when he finds that Osler has written but eight pages of historical introduction, Trudeau two and a half pages introducing the subject of treatment, von Pirquet some seven hastily prepared pages on tuberculosis in children, and Biggs about five hundred words on prophylaxis. All that these men say is, of course, to the point, but we feel just a wee bit of resentment at what seems to smack a little of publishing trade sharpness.

A very commendable feature is the appendix containing an article by Dr. Mary Lincoln on the tuberculin opsonic index, and leaflets of instruction to teachers (Goodall) and mothers (Kress). Knopf's instructions to physicians and his illustrations of devices for the prevention of tuberculosis are of extreme value. A bibliography has been compiled containing some 3000 selected titles.

The book as a whole is reliable, written in a scientific spirit by well-qualified men, and is well adapted to the practitioner.

THE THIRTEENTH, GREATEST OF CENTURIES. By James J. Walsh, M.D., Ph.D., LL.D., Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine. Cloth. Edition 2. Pp. 458, with illustrations. Price, $2.50 net. Catholic Summer School Press, 110 W. 74th St., New York City.

This book represents a digest of summer school lectures. In the first edition, long citations from authorities and the multiplication of notes at the bottom of the pages were avoided. In this edition, however, two appendices have been added, the first giving a summary of the history of the period, the second consisting of "Criticisms, Comments and Documents," which add materially to the value of the work. The sociologic facts cited are of particular interest. It is stated that in the thirteenth century a workman could obtain a pair of hand-made shoes for his daily wage—four pence. The author considers the eighteenth the "lowest of centuries."

Marriages

ISADORE COHN, M.D., to Miss Millie Simon, both of New York City, November 24.

EDWARD A. GUYNES, M.D., to Miss Emma Meyerhoff, both of Knoxville, Tenn., December 29.

GUY CARSON KINNAMAN, M.D., Chicago, to Miss Ivy Irene Brown, of Morrison, Ill., December 29.

EDWIN F. STANNUS, M.D., to Miss Osa Eolia Miller, both of Quincy, Ill., at St. Louis, December 16.

ROBERT W. HORTON, M.D., Raleigh, N. C., to Miss Lillian Jordan, at Centre Hill, Va., December 16.

CHARLES EDWARD RYDER, M.D., U. S. Navy, to Miss Ellen Friend Balch Upton, of Boston, December 15.

JOHN SIDNEY EASON, M.D., Savage, Miss., to Miss Willie Glenn Evans, of Courtland, Miss., December 8.

WILLIAM H. POWELL, M.D., Kasota, Minn., to Miss Carrie McConkey, of LeSueur Center, Minn., December 9.

HENRY EDMUND TISCH, M.D., Wheatland, Wyo., to Miss Eva M. Hanna, of Delphi, Ind., at Denver, December 16.

ROMNEY EMERSON JOHNSTON, M.D., Bridgeport, Okla., to Miss Helen Sanburn, of Edinburg, Ind., December 14.

WILLIAM CLOVIS CUMMINGS, M.D., Oklahoma City, Okla., to Miss Anna Mabel Cater, of Guthrie, at El Reno, Okla., December 14.

MAZYCK PORCHER RAVENEL, M.D., Madison, Wis., to Miss Adele P. Vander Horst, of Charleston, S. C., December 28.

THURSTON WILLIAM WEUM, M.D., Duluth, Minn., to Miss Evelyn Zoe Schaffnit, of Denver, at Colorado Springs, December 15.

Deaths

Henry Martin Weeks, M.D. New York University, New York City, 1873; a member of the American Medical Association; at one time president of the American Association for the Care and Treatment of Epilepsy; assistant physician and pathologist at the State Hospital for the Insane, Trenton, N. J.; for ten years superintendent of the State Epileptic Village, Skillman, N. J.; and later superintendent of the Eastern Pennsylvania State Institution for the Feeble-Minded and Epileptic, Spring City; died at his home in Spring City, December 17, from heart disease, aged 59.

William Elliott Jeffries, M.D. Miami Medical College, Cincinnati, 1875; of Indianapolis; a member of the American Medical Association and an honorary member of the Indiana State Medical Association; president of the Indianapolis Medical Society in 1903; and secretary of the Board of Health of Indianapolis in 1879-1880; was struck by a street car in Indianapolis, December 4, and died a few minutes later, aged 68.

Robert Millar, M.D. University of Pennsylvania, Philadelphia, 1861; a member of the Rhode Island Medical Society; assistant surgeon of the Fourth Rhode Island Volunteer Infantry, and afterward division surgeon during the Civil War; for twenty-one years visiting surgeon and thereafter consulting surgeon to the Rhode Island Hospital; died at his home in Providence, December 17, from cerebral hemorrhage, aged 74.

William H. Gordon, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1888; surgeon of the American Steel and Wire Company at Rankin, Pa.; secretary of the local board of health, and one of the directors of the medical staff of Braddock General Hospital; died at his home in Rankin, October 27, from meningitis, following a fall from a street car two weeks before, aged 45.

Charles Green, M.D. Columbus (Ohio) Medical College, 1879; College of Physicians and Surgeons, New York City, 1880; of Greenville, Del.; a member of the Delaware State Medical Society; died in the University Hospital, Philadelphia, December 13, from the effects of a fracture of the spine, received June 16, in a collision between his carriage and an automobile, aged 51.

John Frank Liken, M.D. Western Pennsylvania Medical College, Pittsburg, 1894; of Toledo; a member of the Ohio State Medical Association; a member of the staff of St. Vincent's Hospital; and one of the commissioners for a pure milk supply; died in St. Vincent's Hospital, December 11, two weeks after an operation for appendicitis, aged 45.

Sidney C. Lankford, M.D. University of Nashville, Tenn., 1876; a member of the State Medical Association of Texas; died at his home in Sherman, December 6, from cerebral hemorrhage, aged 58. At a meeting of the Grayson County Medical Society, held December 8, resolutions of respect and condolence were adopted.

James W. McGee, Sr., M.D. University of Pennsylvania, Philadelphia, 1860; a member of the Medical Society of the State of North Carolina; assistant surgeon in the Confederate Service during the Civil War; died recently at his home in Raleigh, from heart disease, aged 70, and was buried December 7.

Oscar K. Richardson, M.D. University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1893; professor of medical economics in that institution; a member of the staff of the Minneapolis City Hospital; died at his home in Minneapolis, December 10, from cerebral hemorrhage, aged 41.

Eugene G. Wood, M.D. College of Physicians and Surgeons, San Francisco, 1900; a member of the American Medical Association; a veteran of the Spanish-American War with service in the Philippine Islands; was shot and instantly killed while stepping into his automobile in Oakland, Cal., December 9, aged 40.

George Lone Everall, M.D. State University of Iowa, Iowa City, 1896; of Clinton; a member of the Iowa State Medical Society; local oculist and aurist to the Chicago and Northwestern Railway; died at the home of his father in Farmersburg, Iowa, December 8, from cancer, aged 35.

Theodric Birchett Twitty, M.D. New York University, New York City, 1868; a member of the Medical Society of the State of North Carolina; a Confederate veteran; state senator for four terms; president of the Commercial Bank of Rutherfordton; died at his home, December 10, aged 67.

John Terry Poole, M.D. Medical College of the State of South Carolina, Charleston, 1857; a member of the South Carolina Medical Association; surgeon in the Confederate Service during the Civil War; died at his home in Laurens, December 14, from senile debility, aged 73.

E. G. Williams, M.D. Kansas City (Mo.) Hospital College of Medicine, 1885; for fifty-two years a practitioner; a member of the Kentucky State Medical Association; died at his home in Rocky Hill Station, December 12, from heart disease, aged 73.

George Dillwyn Cook, M.D. Medical School of Maine, Brunswick, 1866; of North Vassalboro, Maine; a member of the Waterville Clinical Society; died suddenly at the home of his son in Augusta, Maine, September 15, from heart disease, aged 68.

James Chester Knapp, M.D. New York Homeopathic Medical College and Hospital, New York City, 1884; for fifteen years superintendent of the Geneva (N. Y.) Hygienic Institute; died in that institution, December 11, from nephritis, aged 56.

Paul McM. Salley, M.D. Medical College of the State of South Carolina, Charleston, 1888; a member of the South Carolina Medical Association; and intendant of the town of Pinewood; died at his home, December 12, from hemorrhagic fever.

Charles Lindberg, M.D. Minneapolis College of Physicians and Surgeons, 1905; of Fairdale, N. D.; was injured while trying to board a moving passenger train at Adams, N. D., December 7, and died on the following day, aged 35.

John William Ringer, M.D. University of Michigan, Ann Arbor, 1885; a member of the Ohio State Medical Association; died at his home in Cambridge, Ohio, December 12, a year after a surgical operation, aged 55.

John Franklin Ford, M.D. Vanderbilt University, Nashville, 1905; a member of the State Medical Association of Texas; died at his home in Decatur, from septicemia, following the extraction of a tooth, aged 28.

Daniel Bailey Rees, M.D. King Eclectic Medical College, Des Moines, Iowa, 1884; of Des Moines, Iowa; died at the home of his daughter in Buena Vista, Colo., December 1, from disease of the kidney, aged 85.

Timothy F. Matheny, M.D. Medical College of Fort Wayne, Ind., 1878; a member of the Indiana State Medical Association; died at his home in Auburn, Ind., December 9, from asthma, aged 79.

John Bogardus Hull, M.D. Harvard Medical School, Boston, 1852; a member of the Massachusetts Medical Society; died at his apartments in Boston, December 9, from cerebral hemorrhage, aged 82.

Joseph Blackwood Strachan, M.D. Jefferson Medical College, Philadelphia, 1858; of Princeton, N. C.; died suddenly on a train near Princeton, November 24, from heart disease, aged 76.

Anderson Wilmer Jones, M.D. Jefferson Medical College, Philadelphia, 1890; of Lexington, Ky.; died at the home of his father-in-law near that place, October 22, aged 43.

James Monroe Rigney, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1876; died at his home near Evona, Iowa, May 22, from chronic ileocolitis, aged 54.

George William Strong, M.D. Eclectic Medical College of the City of New York, 1882; of New York City; died at his home, November 7, from cerebral hemorrhage, aged 73.

Oscar Martin Duncan, M.D. University of Louisville (Ky.), 1907; formerly of Bridgeport, Ill.; died in Bay St. Louis, Miss., October 23, from bronchopneumonia, aged 34.

Rensselaer Platner, M.D. Albany (N. Y.) Medical College, 1846; health officer of Germantown, N. Y.; died at his home, November 19, from senile debility, aged 87.

Elisha M. Dunham, M.D. Physio-Medical Institute of Cincinnati, 1870; died suddenly at his home in Grand Rapids, Mich., December 10, aged 61.

Benedict Dallas Bucher, M.D. Jefferson Medical College, Philadelphia, 1871; died at his home in Lebanon, Pa., December 7, from dropsy, aged 76.

Josiah Raymond Kelly, M.D. University of Michigan, Ann Arbor, 1872; died at his home in Quincy, Ill., July 2, from dysentery, aged 62.

Amos A. N. Clark, M.D. St. Louis Eclectic Medical College, 1882; died at his home in Denver, December 10, from pneumonia, aged 81.

John L. Cooper, M.D. University of Pennsylvania, Philadelphia, 1877; died at his home in Albany, N. Y., December 12, aged 52.

George H. Cook, M.D. Jefferson Medical College, Philadelphia, 1851; died at his home in McDonald, Pa., December 12, aged 82.

William Coburn, M.D. Victoria College, Cobourg, Ont., 1864; died at his home in Oshawa, Ont., October 27, from paralysis, aged 72.

Neil McKinnon, M.D. McGill University, Montreal, 1895; died at his home in Alpena, Mich., December 12, from heart disease, aged 37.

Robert T. Barton, M.D. Medical College of Georgia, Augusta, 1856; died at his home in Wrens, Ga., December 1, aged 77.

Society Proceedings

COMING MEETINGS

Medical Society of State of New York, Albany, January 25.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-second Annual Session, held at Hot Springs, Va., Dec. 14-16, 1909

The President, DR. STUART MCGUIRE, Richmond, Va., in the Chair

Surgical Junk, Demanding Surgical Interference

DR. JOSEPH PRICE, Philadelphia: A short time ago a patient asked me to reopen her abdomen, and to correct, if possible, a distressing condition that she could bear no longer. The abdomen had been opened three times—a pelvic operation followed by two gall-bladder operations. She complained bitterly of a griping sensation in the epigastric region, followed by nausea and starvation. In six days I have reopened four abdomens for post-operative, pathologic and operative sequelæ. Numbers of these patients are objects of pity and mercy; all are objects of charity. One of the number had had the abdomen opened eight times. Fortunately the late operations were complete procedures, the reproductive organs and appendix were gone, leaving only a ventral hernia, omental and bowel adhesions to be freed. One of the late operators drained the gall-bladder, leaving a fistula and distressing

adhesions. I liberated the stomach, bowel and other adhesions, exposing the gall-bladder, disorganized and charged with pus; its clean removal will probably result in a cure.

Dealing with surgical junk requires more than the ordinary hospital apprenticeship. The operations done by pioneers in abdominal surgery were free of operative sequelæ. The percentage of recoveries was good in the country. I had the opportunity of seeing a large number of the patients operated on by members of the first school of abdominal surgeons. They constituted an interesting group of patients, none complaining of those common symptoms of modern operations. The high death-rate in the hands of some few operators explains surgically the distressing condition of the few who do recover, but command more surgery. A distinguished specialist in gall-bladder disease lost four patients in a series of five. I reopened the abdomen twice in the fifth patient. I thought I could relieve him by freeing the adhesions in the first attempt. In the second I removed the diseased gall-bladder and placed the viscera in normal relation. The man is now useful, healthy and comfortable. Junk surgery will shorten the lives of the old surgeons if they have the courage to do it. It will also injure their reputations; it gives a mortality that few operators can stand. The young, unschooled surgeon cannot do it. He cannot begin it or complete it. It results disastrously both to his reputation and to his patient, and again he is counseled not to attempt it. Recently I received a letter from a young surgeon, asking me to take a patient, or tell him how to deal with the case. The woman had had two or three gall-bladder operations, followed by fistulas, and is now septic, and asking for relief. I wrote him: "I don't want her; hands off." He came to me the following day for instruction. I said: "Go ahead, remove the gall-bladder if you can find it, and drain." He is a painstaking young surgeon, but I am satisfied that he will not find that gall-bladder. It is needless to detail the variety of pathologic complications from the pelvic basin to the pyloric orifice of the stomach in the great variety of surgical afflictions found between those two points; but if dealt with scientifically, according to our surgical lights, junk will not be the result. Again, in the suppurative forms of disease of the pelvic viscera above the head of the cecum, and on up to the suppurations about the liver, the advanced thinkers and workers have given us perfected procedures, and, if practiced completely and scientifically, but few uncomfortable sequelæ will follow. It is exceedingly rare to get junk from the operating tables of the expert. I rejoice that there is prolonged and painstaking effort on the part of the clinical schools to correct the common errors and calamities. We must have more prolonged hospital apprenticeships for our young men. All graduates should go through a hospital. All hospitals should be made clinical schools, and from this clinical schooling, on top of a thorough scientific education, we will get a new class of practitioners, better pathologists and better diagnosticians. The resulting thoroughness, scientific and clinical, will give us a stronger profession with better judgment, and a confidence in communities that we do not now possess. All junk surgery is uncertain; it may be simple or it may be too complicated for completion. Good numbers of masterful operators have been prompted by their good judgment to give up prolonged and painstaking efforts.

DISCUSSION

DR. LEWIS S. MCMURTRY, Louisville: Dr. Price has called attention to one of the greatest evils prevalent at this time in relation to abdominal surgery. When this association was first organized it was far more difficult for men who were not qualified to do abdominal surgery than at the present time. To illustrate: Let us take any well-appointed hospital in any city in this country and it has a well-appointed operating-room. There is a nurse who is well-qualified to prepare patients for operation and who understands the technic of modern aseptic surgery and an operator who has no operative skill can put on a pair of rubber gloves that have been boiled and, if the preparation has been carried on by this competent nurse, the operator can open the abdomen of the patient, stir around in there a good deal, and the patient may not die. Fifteen or twenty years ago if an operator undertook to do this kind of work the patient would die of sepsis. The surgeon could not clean his hands, he did not have the facilities of the modern hospital and sepsis was the result and that soon finished his career. At present more men are doing tyro-surgery in the abdomen than before. Men without having served any apprenticeship undertake surgical operations which Dr. Price has characterized as junk, in that they are incomplete and done by men who are not qualified to do them. Hence, patients go to surgeons with adhesions of all kinds and ptosis of the viscera and other troubles. It is the duty of members of an association like this publicly and privately to condemn men entering on this work without having served an apprenticeship and without being properly qualified before they undertake it.

DR. A. VANDER VEER, Albany, N. Y.: I always feel that there is a certain amount of risk in encouraging abdominal surgery in small hospitals because much of the work is necessarily done by men who have not served a sufficiently long apprenticeship to do the work thoroughly and completely. Not infrequently a correct diagnosis is not made and incomplete operations are undertaken which do not reflect credit on American abdominal surgeons. Within ten or fifteen years there has been a desire on the part of younger surgeons to do as many operations as they can on a particular patient. I have seen many cases that have terminated in what Dr. Price has termed surgical junk. This paper is not only timely, but deals with a subject to which we should pay more attention than we do. It is the kind of paper for the younger surgeons to read carefully.

DR. WILLIAM M. POLK, New York City: The trouble with some of us is that perhaps we have been endeavoring to work out pathologic problems on live subjects and in so doing we may have left conditions within the abdomen in our endeavor to preserve structures, and so forth, that really had no business there. I find that the average person has been so well-educated that his or her mind is made up as to what they wish the physician to do long before they interview him and if he fails in any way to fall in with their preconceived notion they at once go elsewhere. We all know that a great many of the younger members of the profession have not that stiffness of spine that comes with age, that kind of ankylosis of the vertebral column which is beneficent in its influence and which comes with age and experience.

Adhesion of Sigmoid to the Tube and Broad Ligament as a Cause of Pain in Salpingitis

DR. HUBERT A. ROYSTER, Raleigh, N. C.: The Fallopian tube is the most frequent seat of inflammatory disease in the pelvis. It is the narrowest portion of the channel from the vulva to the ovary and is the least resistant to infection. Pain there is more concerned with salpingitis than with ovaritis, whether attended by a gross lesion or not. Too many times the ovary has been regarded as the offending organ, and needlessly removed. In some instances a diseased tube has been blamed as the sole cause of pain, while other factors produced by the salpingitis, or arising independently of it may be overlooked. A little less than three years ago I had a case which bears on this question.

Mrs. S., aged 30, married seven years, had given birth to one child about a year before. Previous to that she had had an abortion performed, on account of pernicious vomiting. Several weeks before I saw her the same thing had been done again, for the same reason. For two or three years she had suffered from typical tubal dysmenorrhea, the pain beginning a week before the flow and continuing throughout the period. Intermenstrual pain was constant, and referred chiefly to the left iliac region; there had been several slight attacks of pelvic peritonitis. Defecation was particularly distressful. Almost every day the patient was taking morphin or heroin. Examination revealed extreme tenderness in both sides of the pelvis, especially the left. A diagnosis of chronic salpingitis was made. At operation, March 28, 1907, both tubes were found tortuous and thickened, and were removed; their removal was considered justified in view of the history. The ovaries were cystic. I removed the left and excised two-thirds of the right one. In bringing up the left tube for inspection I found that the sigmoid flexure was adherent to its fimbriated end, and also to the upper surface of the broad ligament.

These adhesions were carefully divided, and the raw areas were closed by fine catgut sutures. The result was all that could have been expected. The patient immediately improved, but not until six months had passed was she really relieved. She is now entirely well, menstruating regularly without pain.

I have the records of eight similar cases in which the sigmoid adhesion was apparently the sole source of left-sided pelvic pain. I am convinced that the condition is one to be reckoned with. Its association with salpingitis or other disease of the pelvis cannot, as a rule, be determined beforehand, but it may be suspected in the absence of other lesions, to account for the suffering and more especially in the presence of painful defecation. This has been a constant symptom in the instances which I have observed. When discovered the adhesion must be dealt with as seems proper in the given case. After snipping the bands which fix the sigmoid to the broad ligament there are left two triangular raw surfaces, one on the bowel and the other on the ligament, with their bases together; these form a diamond-shaped area. The peritoneal edges are then closed over this space by continuous catgut, applied from below upward. The sigmoid is thus allowed to drop lower down into the pelvis, away from the tube and ligament, a maneuver which, in my opinion must be executed to secure permanent relief. Covering all denuded places is not less important. In one patient who had also a chronic cystitis, cured by a vaginal cystotomy, I failed to close the raw area as well as I should have done, and she is still, now and then, having pain on defecation, undoubtedly because of the reforming of adhesions. This is the only case of the nine that, so far as I know, has not been relieved.

DISCUSSION

DR. HENRY T. BYFORD, Chicago: When a patient presents herself with pelvic disease I always ask her whether she has pain or not on defecation. Then I ask if there is any mucus in the stools. I think that there is frequently mucus in the stools in such cases, but not the abundant mucus which comes from a general colitis, nor the tendency to tenesmus with mucus that comes from inflammation low down in the rectum. There is pain on defecation, particularly when these patients are at all constipated. In connection with the symptoms, if the pain is in the iliac region there will be found adhesions to the sigmoid flexure. In another class of patients there is pain in the back, and no pain in the iliac region. The cases are apt to occur in women who are constipated and who have a distended colon or sigmoid flexure, and the giving of laxatives and perhaps strychnin and other remedies to tone up the condition of the alimentary canal with proper diet would be sufficient rather than to think of any surgical procedure in the ordinary cases.

DR. ROBERT T. MORRIS, New York City: There is one place where the surgeon should allow adhesions to remain, namely, in his subliminal mind. There is no one thing more overlooked in my experience than peritoneal adhesions and their influence. Dr. Royster likes to close raw surfaces by continuous sutures. We save time by one of two methods. The commonest one which I have used is to sprinkle aristol (thymol iodid) over the raw surface and wait until lymph accumulates and engages the aristol in a mesh. This acts as an obstacle to further adhesion, and I have found it satisfactory in my experiments on animals. The other method is the use of the sterilized animal membrane. That takes a little longer, but in such a case as Dr. Royster has described, aristol powder would engage itself in the lymph coagulum and present an excellent mechanical obstacle to readhesion.

DR. THOMAS S. CULLEN, Baltimore: I have a patient at present who has complained for 5 or 6 years of severe constant pain in the left side. On opening the abdomen I found the uterus perfectly normal. The tubes and ovaries showed no alteration; there was no thickening of the ureter. In making a closer examination of the sigmoid I found it adherent to the entire left broad ligament, extending as far forward as the round ligament. A procedure was adopted similar to the one described by Dr. Royster, that is, freeing the adhesion as thoroughly as possible and closing the raw surface of the broad ligament by a continuous catgut suture and the raw surfaces of the rectum by interrupted suture, on account of which slight tearing is not so likely to occur.

DR. I. S. STONE, Washington, D. C.: In opening the abdomen for tuberculous peritonitis and allied conditions we can never hope to separate all adhesions in such cases. It would be folly to try to do it. There are many women who have extensive adhesions, one organ being thoroughly adherent to its fellow, yet there may be no pain on defecation, or at any time. Where are we to stop in separating adhesions when we have such cases as that? Not long ago a woman came to me with a history of pain in the scar of a former operation. She had been operated on in Paris by an eminent surgeon; a consultation with three physicians was held. There was pain in the cicatrix and that was about all the woman could tell. The majority voted in favor of opening the abdomen to release the adhesion. When the abdomen was opened a slender adhesion of the omentum was found. The family was told that adhesions were found and separated. What else could they be told? The patient suffered precisely the same as before the operation. I find I am getting excellent results from operating on patients and placing the bowels in the very best condition I can for continuous passage of flatus and feces. I have separated adhesions of the sigmoid and in some cases have been astonished to find not only the greatest improvement, so far as pain and local distress are concerned, but in the general improvement of the patient, when the sigmoid has been sutured up out of the pelvis, where there should be continuous passage of the flatus and gas, instead of more or less obstruction, produced by a circular folding or duplication of the sigmoid in the pelvis. Such an operation as that has given me more satisfaction than the mere separation of adhesions.

DR. W. P. CARR, Washington, D. C.: We have all seen cases in which there were a great many adhesions and no pain, and in other cases in which there was a slight adhesion with a great deal of pain. It is the situation of the adhesion and not the extent of it that causes trouble. A patient experiences great pain when there is a slight strong adhesion attached to a small area of some movable organ; whereas in the case of an extensive adhesion to a large surface the weight is sustained without any pain whatever. The most painful adhesions have been those where there was a small band pulling on some point of a movable organ. I have seen a number of such cases and have relieved the patient by separating the adhesions not larger than a lead pencil. On the other hand, large adhesions, especially around the liver and the stomach, do not seem to produce any pain.

DR. H. ROYSTER, Raleigh: I am glad Dr. Byford mentioned the discharge of mucus, because that is very important. The question then arises in such a case: Is not the intestinal condition the cause of adhesion rather than the pelvic disease? When the adhesion is due to intestinal stasis the discharge of mucus is a prominent symptom, but when it is secondary to pelvic disease, mucus is not a prominent symptom.

(To be continued.)

AMERICAN ACADEMY OF MEDICINE

Third Mid-Year Meeting held at New Haven, Conn., Nov. 11-12, 1909

(Concluded from Vol. liii, page 2126)

THE PARENT THE STRATEGIC POINT OF THE PRESENT

The Division of Child Hygiene and the Reduction of Infant Mortality in the City of New York

DR. THOMAS DARLINGTON, health commissioner of New York, emphasized the importance of preventive measures in the hygiene of infancy and childhood. Efforts for the reduction of infant mortality should be followed by those tending toward the preservation of the health of the child. Correlation of all activities relating to child health in New York City by the formation of a Division of Child Hygiene includes the supervision of midwives, control of the boarding out of foundling infants, inspection of day nurseries and institutions harboring children, instruction of mothers in the care of babies, medical inspection and examination of school children and issuance of employment certificates, thus maintaining

supervision of the health of children from birth to puberty. Educational measures are important in public health work. The most essential feature is personal instruction in the home. There was a marked decrease in the death-rate from diarrheal diseases, particularly during the past summer.

The Three Years' Experience of the Babies' Dispensary and Hospital of Cleveland in the Education of the Mother

DR. H. J. GERSTENBERGER, Cleveland, described the methods used by the Babies' Dispensary and Hospital designed to promote nursing and regular visits by the mother to the dispensary for prophylactic advice by the physician, and gave a critical study of the value of these methods by statistical determination of the results obtained in 201 cases referred to the dispensary soon after birth by obstetric dispensaries. He also took up the question of giving premiums, as carried out in Germany, to promote regular attendance and nursing. He emphasized the desirability of a system by which the relatively large loss of families through moving could be avoided.

An Outline for the Study and Prevention of Infant Mortality for Boards of Health of Small Cities

MR. SELSKAR M. GUNN, health officer, Orange, N. J., discussed the necessity for small cities taking more interest in the study and prevention of infant mortality, and laid stress on the value of a thorough study of the problem from the statistical point of view. He also took up the causes of death, so-called "unavoidable causes" and causes recognized as preventable. He then went on to consider: The necessity for the Board of Health having good relationships with the Bureau of Charity, Diet Kitchen, Visiting Nurses' Settlement, etc.; how to reach the mother as soon as possible after the birth of her child; difficulties of educating young women in the principles of sex hygiene, maternity and the care of infants before their marriage; the work of the visiting nurses; the importance of hospitals and dispensaries; other branches of public health work that must be carried on; a plea for an organized campaign in small cities as there has been in some of the larger communities.

Discussion on Papers of Drs. Darlington and Gerstenberger, and Mr. Gunn

DR. J. S. NEFF, Philadelphia: New York sets the rest of the country an example in the control of the subject by the municipality. The key to the solution of the whole problem lies in the home, and in the application of methods similar to those described by Dr. Darlington. The mortality in Philadelphia of children under 5 years is 30 per cent. of the total mortality, and if congenital malformation and accidents of birth are eliminated and deaths from disease only are considered, it is found that 83 per cent. of these deaths, or 64 per cent. of the total death-rate, come from preventable causes. The campaign of prevention and education should be conducted through the board of health, as in New York. No appropriation being available for such an undertaking in Philadelphia, a movement termed the Babies' Alliance was organized two years ago, under the control of the Department of Health, the Board of Public Education, the Congress of Mothers, the Home and School League and kindred societies. Under the direction of the alliance, committees and subcommittees have been formed. The city is districted and the entire city is under the supervision of the committee. The names of mothers are given to the committee immediately on the birth of a child and visits of instruction are paid. Two years' work has resulted in a decrease of 7 per cent. in the mortality rate among infants. The examination of and instruction of midwives by the board of health is included in a plan lately inaugurated in Philadelphia.

DR. JOHN M. CONNOLLY, Boston, said that emphasis is laid on breast feeding in the work of the Boston milk committee. He favored granting a pension temporarily to a wage-earning mother to enable her to stay at home and nurse her baby. Classes for the instruction of the fathers as well as of the mothers have been found to be productive of good results.

PROF. IRVING FISHER, New Haven, Conn., spoke from the standpoint of the statistician. Infant mortality is a problem to day, largely because of the decline of the birth-rate, and the real problem of infant mortality is connected with the birth-rate quite as much as with the death-rate. The parent is the strategic point to-day, especially because the parent is exercising volition which was formerly not exercised in regulating the birth-rate, and this volition must be matched by a corresponding change in the death-rate. An interesting report of the Royal Commission in New South Wales was published about a year ago on the decline of the birth-rate in New South Wales, and the problem of infant mortality in their relation the one to the other. It was found that the birth-rate in New South Wales had declined something like 25 per cent., and that a corresponding decline, though to a lesser degree, has been going on in other parts of Australia, and in fact throughout the civilized world. There are two problems that come out of this, of world-wide importance. While we are fixing our attention on preventing infant mortality from the standard of the individual, we will forget that the important point is from the standard of the race, and the two problems which confront races are depopulation and degeneration. It would not be at all impossible that a country, and large classes of country, should gradually decline in numbers. In fact, college graduates have shown this tendency already, so that the birth-rate among college graduates, so far as statistics of the size of families enable us to judge, show that graduates of Yale, of Wellesley, of colleges for both men and women, so far as there have been any records throughout the country, are declining. They are not keeping up their end in the population. And if this should extend to the whole population there will be either depopulation or the necessity of improving the death-rate to keep the equilibrium. If it should ever happen that the better class, by which I mean the vitally better class, should refuse to keep up their end in the population, and the worst classes, the criminal and defective classes, should multiply, in the haphazard way in which animals and hitherto men have multiplied, there will be inevitable degeneration. These seem to me to be the great problems that come out of the birth-rate, and the problem of infant mortality is one of them. If we are to keep our population going and keep it from degenerating, we must prevent this needless waste of human life. There are so many factors that enter into the case it is impossible to say to-day whether a decrease is going on. The statistical record in Great Britain was inconclusive, and there is no corresponding record in this country, and we do not know whether we are decreasing in numbers except for the immigration, as that covers it up, or whether we are degenerating in quality.

In this connection I would like to emphasize a point that is very close to my heart, not the problem of infant mortality, but of health in general, and the problem of eugenics which is largely dependent on information to be obtained through the improvement of the federal organization of health at Washington. A great deal has been said in regard to the local work and in regard to the private institutions. But those agencies are relatively small as compared with the power of the federal government. Moreover, they are incomplete, because we never can get a broad view of the population, and the relation of birth-rate to death-rate in the population, until we get a large area. If we could have a federal organization of health at Washington to cooperate with the magnificent work that is being done in New York, Philadelphia and other cities, and the private work, such as has been illustrated in Cleveland, we might hope for the information on which any rational solution of the questions of population, depopulation and degeneration could be solved. It seems to me we need at Washington a bureau of child hygiene, a bureau of health to work in cooperation with the other agencies which have been spoken of this afternoon.

DR. H. I. BOWDITCH, Boston: The first essential toward a solution of the problem of the prevention of infant mortality is the enactment and enforcement of legislation requiring the accurate registration of births. And registration should be followed up by boards of health as suggested by Mr. Gunn.

MRS. W. L. PUTNAM, Boston, described the methods by which the infant social service department of the Woman's Municipal League of Boston cares for dependent mothers and children; giving especial attention to the instruction of the mothers in the care of the children.

DR. W. A. EVANS, Chicago: The problem is a large one and its full solution will require the solution of great questions of political economy. Until some health officer tackles the underlying questions of political economy, no satisfactory solution of the problem will be reached. What is needed now is cooperation between the boards of health and the people themselves, the mothers especially. How to get at the mother and through her to get at the child is the great problem. The success in New York has been largely due, he said, to the fact that the board of health had rid itself of the idea that the baby to be sought after was of necessity a sick baby; and realized that it is the baby that has just been born that needs attention, concentrating for the time being on that baby in which there is the greatest coefficient of sickness. The philosophy of the situation would mean that before the problem is settled we must come back to the people before the babies are born; and to the circumstances of society that are responsible for the conditions into which the baby is born.

DR. I. S. WILE, New York: A better foundation could not be laid for the hygienic education necessary for the prevention of infant mortality than by utilizing our educational institutions, by beginning with a rational series of well-devised courses in hygiene in our public schools.

DR. HELEN C. PUTNAM, Providence: For a quarter of a century there has been talk about teaching children hygiene; but the teachers should be taught first.

DR. HOLMES, Newark, N. J.: A plan has been tried in Newark in accordance with which lectures have been given on hygiene and on diseases common to school children by the school inspectors. This year the lectures are to be given by men outside the force of inspectors. There are also evening classes on nursing conducted by physicians for mothers or for any who wish to attend.

WHO SHOULD AND WHO SHOULD NOT BE PARENTS

Fit and Unfit Matings

PROF. C. B. DAVENPORT, director of the Station for Experimental Evolution, Long Island, N. Y.: Greater precision in predicting hereditary transmission has been acquired since the establishment of the principles that human characteristics are inherited separately of one another; that they do not blend in heredity; and that when an elementary characteristic is absent from both parents it will be absent from all children. Wherever an undesirable abnormality is due to an hereditary factor, as it is in short fingers, hereditary cataract, night-blindness, polydactylism, syndactylism or "lobster clawed" hand, and perhaps, diabetes, normal offspring of strains in which the defect is hereditary will never have abnormal children. But in cases in which the undesirable condition is due to the lack of some characteristic normally present, the children of two similar abnormals will be abnormal as in albinism, imbecility, and certain forms of weakness in the mucous membranes.

The Limits of Eugenics

PROF. ALBERT G. KELLER, professor of the science of society, Yale University: The ultimate limits of the application of any social innovation lie in the customs, conventions and habitudes of the society in question—lie, in a word, in the folkways. Galton, in his desire to introduce eugenics "into the national conscience like a new religion" really wishes to get eugenics in among these elemental conventions and habitudes. To understand, then, the limits set to his enterprise, it is needful to consider the nature of the latter and the mode of their origin. This has been worked out in masterly fashion by Prof. W. G. Sumner in his volume called "Folkways." The folkways are really uncodified societal conventions and habitudes, sanctioned by religion and including a judgment that they are conducive to societal welfare. They grow up naturally throughout human history; the origin of all the most elemental are lost in hoary antiquity; they are not products of study and reason, and are not amenable to rational criticism or alteration. Passing fashions are the less inveterate of the folkways. Attempted alterations of so elemental a body of conventions and prejudices as has grown up about a function so elemental as that of procreation are sure to meet the solid inertia of human prejudice and blind conservatism. Hence these ultimate limits are likely to come into evidence and should be understood. What eugenists can do, in this "age of reason," is to combat the grosser manifestations of counter-selection or breeding from the unfit, through the means of legislation and education. Sympathy for the unfortunate unfit should not extend to the granting of the right of procreation, by which the parental unfitness is perpetuated at the expense of the fit who, at the very least, are taxed to afford the relief given. Here, too, any hurried or radical enterprise (*e. g.* the abrupt enforcement of premarital physical examination) is sure to run afoul of the folkways (*e. g.* the sense of modesty). But there is yet another way to work for eugenics; and that is to expand, so far as possible, the limits set for it by ignorance; to invoke an actual fear of consequences. This is the province of the medical man, who is in the position to know the dangers and to some extent to enforce what he knows on a number of people. Laws forbidding the most frequent cases of counter-selection (*e. g.* marriage of idiots) can be passed by the educated minority, and enforced by the machinery of the state on the ignorant or careless. There can be no grand overturning of what has existed time out of mind, but there can be a skillful elimination of certain gross extremes of man-breeding.

Discussion on Fit Parents

DR. W. H. CARMALT, New Haven: Referring to the statement made that criminality is increasing at a faster rate than population in America, said that criminality is but one branch, and the result of degeneracy. Children born of criminals become criminals by reason of their environment, and also by reason of the fact that they are born degenerates, and are unable to resist or appreciate the influences which bring about crime from their environment. It is for that reason that the number of degenerates should be limited; and the propagation of degenerates should be restricted.

DR. F. A. WOODS, Brookline, Mass., said that he considered the growth of interest in the study of heredity an encouraging sign. It is no longer necessary to be on the defensive in proving that there is anything in heredity. Ten years ago there was practically nothing on the subject except the writings of Francis Galton. To-day, we are in a position where we can say two things: first, that heredity is important; second, that it is important that alternative inheritance be considered in any study of the subject.

THE EDUCATION OF THE PARENTS OF THE FUTURE

The Responsibility of the Medical Profession for Public Education in Hygiene

DR. JOHN M. TYLER, professor of biology, Amherst College: The best means of decreasing infant mortality is to make sure of a race of healthy babies. Healthy children demand healthy parents. The next generation of parents is being made strong or weak in home and school to-day by an environment furnished by parents and teachers. These latter cannot be too well instructed in physiology, hygiene and biology. The possibilities, value, glory, and necessity of a vigorous and efficient life cannot be too strongly emphasized and clearly taught. Instruction of every kind has its place and value; but instruction through books and schools is inadequate. It can neither teach nor make allowance for individual differences in constitution and habit. It will probably fall on deaf ears or if heard and heeded will be misapplied. The most unfortunate child in the world is the one brought up according to theories framed from the study of books or from the lectures of the most learned and wise teachers. Parents and teachers need the sound advice of the practical and experienced physician far more than lectures, treatises or text-books. This we can safely follow. The physician should advise the parent as the lawyer advises his client or the banker the investor. No amount of study, however valuable, can replace such advice. Most of us will follow it for our children, if not for ourselves. Preventive medicine is the watchword of the day, and such instruction by our best physicians is one of the most important parts of the new work. It is being done to a certain extent already, it should be a far larger part of the work of the earnest and patriotic physician.

The Foundations of Prevention

DR. WILLIAM T. SEDGWICK, professor of biology, Massachusetts Institute of Technology: Discussion of infant mortality in the eighteenth century centered largely around infant damnation. In the nineteenth century it shifted to postmortem salvation, and in the twentieth is turning toward prevention. So long as one of the most powerful intellects of the eighteenth century—Jonathan Edwards—could affirm that infants, not of the elect, "are, in the sight of God, as young vipers," it was natural for more common folks to contemplate an excessive infant mortality not perhaps with satisfaction but with resignation. The watchword of a scientific age is prevention. The prevention of waste, the prevention of poverty, crime, pain, disease and premature death are now debated as never before. But scientific prevention requires for its foundations the completest possible knowledge of nature, including human nature, and of natural law; and above all more careful studies in biology, the science which lies at the basis of all knowledge of life and death. We must have also more and better training in all sorts of applied biology, such as hygiene and sanitation and eugenics, before we can expect to interfere wisely with natural processes or to control successfully the blind forces at work about and on and within us.

Discussion on Papers of Drs. Tyler and Sedgwick

PROF. C. F. HODGE, Worcester, Mass.: Adequate, definite vital instruction in practical biology should be given in the public schools, which should bring every boy and girl out of our grammar schools able to keep himself or herself healthy, and which should bring every young man and young woman out of our high schools active promoters of all good measures for civic health and enthusiastic members of the American Health League. It may seem a long way round, but the planting of a seed, and the rearing of the best possible plant from that seed by children in school would have an effect when those children became parents. So much for the training in the elementary schools. For the high schools, I advocate the establishment of strong courses in practical biology, taught in such a way that the influence of the teaching would react on the life in the homes, and on state and national morals. Finally, there should be such an education of public sentiment that it would no longer be practically impossible to persuade publishers to bring out a book in which the social diseases are discussed.

DR. WOODS HUTCHINSON, New York: The data collected by Professor Davenport are wonderfully illuminating, and the fact brought out most strongly in Professor Davenport's findings in the Mendelian law is that those unfavorable factors which are inherited are negative, or in the language of the Mendelian phrase, recessive; while those characters which make for health and vigor are positive and depend on a positive determinant, and not on the absence of a determinant. The whole tendency is in the direction of producing three-fourths vigorous, and one-fourth or less recessive, undesirable and inferior. This is carried out and supported by everything we know. There never were fewer insane or criminals than at present. There were never fewer criminals than at present. The apparent increase is due to the way in which crime is classified. There is no adequate foundation for the belief that crime or degeneracy are on the increase, and nothing to be afraid of in the decreasing birth-rate; there is an adequate balance between the death-rate and the birth-rate; as a matter of fact modern races are increasing more rapidly and with a better class of increment than ever before.

DR. T. G. WOOD, Columbia University, said that he began to teach the principles of eugenics to his classes about fifteen years ago and said that he frequently heard now from former pupils telling him of the practical benefit the instruction had proved to them and to their children.

DR. F. A. WOODS considered the application of the phrase "Mendelianism" to be fraught with danger at the present time in view of the fact that it was impossible to bring the most important characteristics within its range.

DR. WARD CRAMPTON, New York, said that emphasis was being placed on the teaching of hygiene, and that what was needed was the formation of hygienic habits.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Operation of Medical Legislation in the British Isles

Personal opinion on the subject of legislation regulating the practice of medicine is evidently as unsettled and conflicting in Great Britain as it is in the United States. A recent number of the *British Medical Journal* gives an account of a meeting held under the auspices of the Metropolitan Counties Branch in London for the purpose of hearing addresses from the three direct representatives for England and Wales on the General Medical Council.

THE GENERAL MEDICAL COUNCIL

This body consists of thirty-four members, twenty-four chosen by the royal colleges and universities (twelve from England, seven from Scotland, and five from Ireland), five members nominated by the king and five elected as direct representatives by the British Medical Association, three of whom must be registered medical practitioners residing in England and one each from Scotland and Ireland. The three direct representatives for England and Wales were present and addressed the meeting. Dr. Langley Browne reviewed the history of medical legislation in England.

Previous to 1858, each university, the royal colleges of physicians and surgeons, and the Apothecaries' Hall each laid down its own regulations for study and examination and granted a degree or license without any state supervision. In 1858 the General Council was created by act of parliament. At first it consisted of twenty-three members, seventeen appointed by different licensing bodies and universities and six by the crown. In the same year the Medical Register was established, in which no name could be entered except that of a person who holds a diploma or license from one of the licensing bodies. Various amendments were passed up to 1886, one of the most important being that of 1862, giving to the General Medical Council the sole right of publishing, printing and selling the British Pharmacopeia. The amendment of 1876 removed any disqualification in respect to sex in regard to registration.

In 1886, the present act was adopted, in which for the first time direct representation was granted. The five direct representatives are elected every five years and each registered practitioner is entitled to a vote on the candidates nominated in his division. Thus, in England and Wales, each registered practitioner can vote for three candidates, but in Scotland and Ireland he can vote for only one. At the last election, there were in England and Wales 25,168 electors, and in Scotland, 3,845. Dr. Browne advocated the division of England into equal electoral districts. It is interesting to note that out of the total number of ballots (24,650) sent out in England, 11,752, or 47.66 per cent. were returned correctly made out and within the proper time, 11,831, or 47.98 per cent. were not returned at all, while 1,503, or 12.61 per cent. were returned, but were thrown out on account of failure to comply with the regulations in filling out the ballots, so that in an election held for the purpose of allowing the medical profession to choose its own representatives, nearly half of the physicians did not take enough interest in the matter to vote at all, while the votes of less than one-half were counted.

PREPARING FOR BETTER THINGS

Discussing the recent work of the council, Dr. Browne called attention to the committee on unqualified practice, appointed in accordance with a recommendation of the council to inquire into the laws in other countries regulating unqualified practitioners. Through the Privy Council, the Foreign Office, and the Colonial Office, the laws of all civilized countries regulating medical practice have been secured, showing that in almost every country except Great Britain, unqualified practice (that is, the practice of medicine by unlicensed individuals) is not permitted.

Dr. Latimer, another direct representative on the council, discussed the suppression of quackery. He said regarding the British medical practice act: "The law is so loose that, provided a man does not use medical titles, he can practice unhindered. He is simply restrained from giving evidence as a medical man in courts of law and from obtaining and holding certain public appointments." The medical practice acts in some of the British colonies and dependencies have gone much farther than the British act in the restriction of unqualified practice. For instance, the law in the British Central Africa Protectorate provides that "any person who shall wilfully and falsely pretend to be a duly qualified medical practitioner or who shall use any name or title implying or calculated to lead people to infer that he is duly registered, or any person who shall practice or do anything or perform any such acts as specially belong to the profession of the medical practitioner, without being registered, shall be fined £100 for each offense." Dr. Latimer quoted Sir Donald MacAlister, who stated in an address delivered at Manchester University in 1906, that the act of 1858 was passed, not for the protection of medical men but as a guide to the public to enable them to distinguish between qualified and unqualified practitioners.

He also pointed out that the British government had recognized the necessity of a restrictive rather than a definitive principle in medical legislation in the passage of the midwives' act, which not only required registration of midwives, but forbade the practice of midwifery by unregistered persons. He considered that it was the duty of the medical profession to collect a mass of evidence respecting the evils wrought by quacks and to present this to Parliament to show that as much evil was wrought by quacks as resulted from dirty and ignorant midwives.

OPTOMETRY IN GREAT BRITAIN

Evidently the British medical profession has had to contend against a movement similar to the so-called "optometry" movement in this country. Dr. Latimer states that in 1906 the British Optical Association, a body of tradesmen engaged in selling spectacles and testing sight, applied for a charter in which they endeavored to imitate the medical act by the creation of a central board, the restriction of glass-fitting and eye-testing to those registered, etc. The application for a charter having been made to the Privy Council, this body referred the petition to the General Medical Council, which adopted a resolution stating that in its opinion it was dangerous in the public interest to confer the powers and privileges contemplated therein on persons other than those duly qualified in medicine and surgery. Accordingly, the request for a charter was not granted.

Dr. Latimer also referred to the application for a charter by a body styling itself "The National Association of Medical Herbalists," the majority of which, he says, were engaged in carrying on quack businesses. This application for a charter was also refused.

A medical act, said Dr. Latimer, does not authorize any body to impose on any candidate offering himself for examination an obligation to adopt or refrain from adopting the practice of any particular theory of medicine or surgery as a condition of admitting him to examination or of granting him a certificate. Thus, a physician might be a homeopathist, but he must first of all have been properly educated and entered on the medical register. This being done, he is free to practice in accordance with any particular theory which he wishes to follow.

WEAK POINTS IN THE BRITISH MEDICAL ACT

The consensus of opinion seemed to be that the British medical act failed in dealing with quacks and incompetent persons. The agitation on this point now being carried on as well as the report of the committee on unqualified practice may lead to future amendments enlarging the powers of the committee so as to make it possible for it to deal with this dangerous class. The composition of the council itself, consisting of representatives of universities and medical organizations, representatives appointed by the crown and representatives elected by the registered physicians themselves, certainly offers many advantages that are worthy of careful consideration.

Dominion Registration in Canada

For many years a sentiment has been growing in favor of a system of regulating medical practice in Canada which would cover the entire Dominion rather than each province. At a meeting recently held in Banff at which representatives of the councils of four western provinces were present this question was discussed and, according to the *Canadian Practitioner and Review*, considerable progress was made. Resolutions were adopted by the representatives of the four provinces present in favor of a uniform law for the regulation of the practice of medicine.

Considerable discussion on this question has also taken place in Ontario although this province was not represented at the conference. The discussion centers around the so-called Roddick bill which provides for dominion regulation as soon as five or more provinces agree to accept it and pass the necessary legislation to make it effective. The problem before the Canadian profession is much the same as that confronting physicians in the United States, though on a smaller scale. Each province in Canada has its own examining and licensing body, which establishes its own standards and which may or may not recognize those of other provinces. The advantages of a single act of the dominion parliament establishing a uniform standard for the entire Dominion of Canada and substituting a central body for the numerous provincial boards is obvious. In view of the evident advantages of a uniform system of regulation, it is to be hoped that the medical profession of our neighboring dominion will be able to secure such legislation.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Second Weekly Meeting

DISEASES OF THE STOMACH

ACUTE GASTRITIS: (a) Acute gastric catarrh; etiology and symptoms. (b) Acute suppurative gastritis; diagnosis. (c) Toxic gastritis; diagnosis and treatment.

CHRONIC GASTRITIS: Pathology, (a) simple, (b) sclerotic gastritis; changes in mucosa, glands, muscularis, blood vessels. Clinical forms (Ewald), (a) simple, (b) mucous, (c) atrophic gastritis; diagnosis of each. Medicinal treatment. Indications for use of hydrochloric acid, ferments, bitter tonics.

DILATATION OF STOMACH

Acute dilatation; etiology, symptoms. Chronic dilatation due to (a) pyloric obstruction, from ulcers, stenosis, adhesions, etc.; (b) gastric atony, from chronic catarrh, over-distention, chronic diseases, etc. Diagnosis, history, symptoms, physical examination.

GASTRIC AND DUODENAL ULCER: Etiology, incidence, age, sex, trauma, diet, associated diseases. Proportion of gastric and duodenal ulcers. Diagnosis, pain, vomiting, hemorrhage, tenderness, gastric contents. Differentiation of gastric and duodenal ulcers.

CANCER OF STOMACH

PATHOLOGY: Situation, forms, adenocarcinoma, medullary, scirrhus and colloid. Changes in stomach, metastases. Symptoms. Gastric symptoms, anorexia, nausea and vomiting, hemorrhage, pain, gastric contents. Loss of strength and flesh, anemia, constipation, edema, tumor.

NEUROSES OF THE STOMACH (RIEGEL)

MOTOR NEUROSES: 1. Hyperkinesis. 2. Peristaltic unrest. 3. Nervous vomiting. 4. Nervous eructations. 5. Rumination. 6. Spasm of the cardia. 7. Pyloric spasm. 8. Atony of stomach.

SECRETORY NEUROSES: 1. Hyperacidity. 2. Supersecretion, intermittent and continuous. 3. Subacidity or anacidity.

SENSORY NEUROSES: 1. Hyperesthesia. 2. Gastralgia. 3. Bulimia. 4. Akoria. 5. Anorexia nervosa.

Medicolegal

Requirements in Proceedings for the Adjudication of Insanity —Admissions of Insanity

The Supreme Court of Michigan says, In re Phillips (122 N. W. R. 554), that proceedings taken for an adjudication of insanity against an individual should require the strictest compliance with all the statutory requirements provided. The determination affects the rights of the individual to the enjoyment of life, liberty and property. Courts will ever protect the rights of the individual who is so unfortunate as to be called on to make a showing to maintain his or her mental integrity.

An admission of insanity can never fix the status of unsound mind in the person making the admission. The law prescribes the only way a determination of insanity may be declared. It is doubtful whether in any case, where no rights of innocent third parties intervene, any conduct of any person will prevent him from questioning in any proceeding the regularity and determination of his insanity.

All persons are presumed to be sane, and in every proceeding the burden of proving insanity rests on the one challenging the sanity of the individual. It is always a question to be tried out in the proceeding then pending where it is raised.

The proceeding leading to an adjudication of insanity is not an adversary proceeding. It is a proceeding in the interest of the public to protect deficient citizens. It is therefore not a proceeding where any act or admission of the party could prejudice an adverse party.

Practicing Medicine Without a License

The Supreme Court of Indiana says, on the appeal of Melville vs. State (89 N. E. R., 490), where it affirms a conviction of practicing medicine without a license, that the accused argued that a diploma held by him from a school of osteopathy at the time the law went into effect entitled him to a license to practice medicine, and having applied to the Board of Medical Examination for a certificate, and exhibited and filed with the board his diploma and paid the legal fees, and done, as he averred, all that he was required by the law to do, and his license being wrongfully withheld, he had a right to practice medicine. But in this contention he fell into error.

The mere delivery of the diploma to the board, and the payment to it of $10 as a fee, of themselves amounted to nothing. Calling the money paid a license fee did not make it a license fee. The Indiana statute requires the payment of $10 to the board as an examination fee, to determine whether the candidate for license is a fit person to receive it. The payment of the $10 secures to the candidate no privilege or advantage beyond the right to an examination by the board as to fitness to exercise a license. And because the contrary was not alleged, the court infers that the accused never had an examination by the state board, or, if he had one, he failed to prove himself qualified and entitled to a certificate; and if he had in fact received a certificate, that he never presented it to the county clerk, and requested the issuance of a license on it. If either of these assumed facts existed, he was not entitled to a license.

Again: According to his plea, he had no qualification, or right, to a license to practice medicine beyond that conferred by his diploma from a Chicago school of osteopathy. If the court granted that the school that issued to him the diploma was a reputable and an approved school of osteopathy, that would not strengthen the answer. His failure to affirm that he was practicing osteopathy only was equivalent to an admission that he was practicing medicine generally, and the very most he could claim the right to do was to practice osteopathy.

Nor was there error in denying to the accused the right to read in evidence, as a license to practice medicine, the receipt, given by the secretary of the board for "ten dollars in payment of legal fee on diploma for certificate." The receipt was not a license, and furnished the accused no excuse for the violation of a specific requirement of the law. Even if he had shown that he was entitled, and that a license was arbitrarily withheld, it would have afforded him no sufficient justification to practice medicine. If a license was wrongfully withheld, his remedy was to proceed by appeal, or some other appropriate action to obtain it.

What Constitutes Serious Illness and "Spitting or Coughing of Blood"

The Supreme Court of Oklahoma says, in Eminent Household of Columbian Woodmen vs. Prater (103 Pac. R. 558) that not every illness is serious. An illness may be alarming at the time, or thought to be serious by the one afflicted, and yet not be serious in the sense of that term as used in insurance contracts. An illness that is temporary in its duration, and entirely passes away, and is not attended, nor likely to be attended, by a permanent or material impairment of the health or constitution, is not a serious illness. It is not sufficient that the illness was thought serious at the time it occurred, or that it might have resulted in permanently impairing the health. A cold may be, and sometimes is, followed by pneumonia, pleurisy, abscess of the lungs and consumption, but to hold that because a cold may be attended or followed by such consequences it is a serious illness, and that a failure to mention such in response to an inquiry in an application for insurance as to the nature and character of any serious illness the applicant has suffered, would result in invalidating almost all contracts of insurance, the covenants of which are based on the statements in the application as warranties; for, if a careful investigation should be made in the lives of persons insured, in almost every life there would be found some incident of illness of such ordinary occurrence and insignificance in its effect, yet of possible seriousness, which the applicant, without careful scrutiny and accurate recollections of his past life, has overlooked to mention. As used in an application for a life-insurance policy, the term "serious illness" means such an illness as permanently or materially impairs, or is likely permanently or materially to impair, the health of the applicant.

The phrase "spitting or coughing of blood," as used in a question propounded by a medical examiner to an applicant for a life-insurance policy, as to whether she had ever had "spitting or coughing of blood," means the disorder so called, whether the blood comes from the lungs or from the stomach. Whether this language would include any spitting of blood, however small in quantity and unimportant, such as might come from a wound of the gums, or the removal of a tooth, or the biting of the tongue, it was unnecessary for the court to determine in this case, because that question was not involved under the facts of the case, but it would include the disorder by that name called, whether the blood came from the stomach or from the lungs, when it had assumed such proportions as to be a disease.

Validity of Contracts Restricting Practice of Medicine

The Supreme Court of Oklahoma holds, in Threlkeld vs. Steward (103 Pac. R. 630), that a contract restraining the practice of medicine and surgery in a particular locality, within a reasonable area, is valid. The practice of medicine and surgery within the prescribed limit, contrary to the provisions of such a contract, may be restrained by injunction. Courts will not, as a rule, inquire into the adequacy of the consideration of such a contract.

There is no discord in the authorities, the court says, that, where the restraint is no more extensive as to area than the protection of the party with whom the contract is made reasonably requires, the public not being likely to be injured by such an agreement, every other person being at liberty to practice within such limits, such contract is reasonable and valid, unless otherwise vitiated. While courts will scrutinize to determine whether or not the restraint be unreasonable, yet, as a rule, they will leave it to the parties themselves to make their terms in regard to the consideration thereof.

The rule is supported by both reason and authority that an agreement for a valuable consideration not to practice medicine within a reasonable distance of a designated place is not unreasonable, and the exercise of the profession within such prescribed limit may be restrained by injunction.

In the absence of fraud, accident or mistake, the terms of a written contract are not permitted to be varied by oral testimony; but evidence showing the relation of the parties and their profession or business, when not in conflict with the express terms or language of the contract, is admissible.

Identification of Subject of Autopsy by Photograph

The Supreme Court of Oregon says, in the homicide case of State vs. Finch (103 Pac. R. 505), that the physician who performed the autopsy was not personally acquainted with the deceased, and only knew that he had performed an autopsy on the body of some person unknown to him. A photograph of the deceased, proved to be a correct likeness, was shown to him, and he then testified that the person on whom he performed the autopsy was the same person represented in the photograph. For the same purpose of identification the photograph was also shown to other witnesses. It was a picture showing the deceased in health and strength, and was not in any way calculated to excite the passions or sympathy of the jury. In the case of State vs. Miller, 43 Or. 325, a photograph showing a number of gunshot wounds on the body of the deceased, and presenting what the court called "a grewsome spectacle," was introduced without any apparent necessity, and without proof of its correctness. The court held that under the circumstances its introduction tended unnecessarily to inflame the jury against the defendant, and that its admission was error. But in this case the purpose for which the picture was introduced was proper, and there was nothing in any way calculated to prejudice the defendant's case in exhibiting it to the jury. It was not error to allow the photograph to be introduced in evidence.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

December 18

1 Cerebrospinal Meningitis; Clinical Observations and Serum Treatment. L. Fischer, New York.
2 *The Wassermann Reaction (Noguchi Modification) in Pellagra. H. Fox, New York.
3 *Etiology of Pellagra. J. H. Taylor, Columbia, S. C.
4 Amebas in the Stools of Pellagrins. W. Allen, Charlotte, N. C.
5 What can we do to Prevent, Arrest, and Cure Generalized Fibrosis? F. S. Mason, New York.
6 Case of Malignant Precocious Syphilis. H. B. Epstein, Newark, N. J.
7 Two Cases of Modern "Point Tying." W. H. Luckett, New York.
8 Open Method of Treatment in Simple Fractures. M. F. Porter, Fort Wayne, Ind.
9 Palliative Treatment for External Hemorrhoids. G. E. Barnes, Herkimer, N. Y.

2, 3. Abstracted in THE JOURNAL, Nov. 13, 1909, p. 1659.

Boston Medical and Surgical Journal

December 16

10 Cases of Renal Suppurations in Typhoid. C. F. Withington, Boston.
11 *Bacillus of Acne. H. F. Hartwell, and E. C. Streeter, Boston.
12 *Treatment of *Bacillus Aërogenes Capsulatus* Infections by Proximal Injections of Hydrogen Peroxid. F. H. Lahey, Boston.
13 The Gailloux Murder. A Case Solely of Circumstantial Evidence, with Conviction of the Murderer. W. F. Whitney, Boston.
14 Diagnosis of Ulcer of the Duodenum. E. A. Codman, Boston.

11. **Bacillus of Acne.**—In three cases of acne which Hartwell and Streeter studied, a bacillus identical with the bacillus of acne of Gilchrist and other observers was obtained. From the case with which it could be obtained from these two cases when grown anaerobically, the authors think that it can probably be cultivated from all cases of acne.

12. **Proximal Injections of Hydrogen Peroxid.**—Experiments made by Lahey have convinced him that the injection of hydrogen peroxid into the human for the purpose of stopping the extension of a *Bacillus aerogenes capsulatus* lesion would never be justified, owing to the danger to life connected with this form of treatment.

Medical Record, New York

December 11

15 Present Status of the Tonsil Operation. G. L. Richards, Fall River, Mass.
16 The Last Epidemic of Yellow Fever in Cuba. P. C. Fauntleroy, U. S. Army.
17 Acute Gonorrheal Prostatitis. F. C. Valentine, and T. M. Townsend, New York.
18 Treatment of Diseases in Senility. I. L. Nascher, New York.
19 Evidence Controverting Rosenberger's Tuberculous Bacteriemia Hypothesis. B. Stow, New York.
20 *New Method of Applying Lactic Acid Bacilli in Treatment of Suppurating Wounds. W. B. McLaughlin, New York.
21 *Total Ophthalmoplegia. F. M. Fernandez, Havana, Cuba.

December 18

22 Treatment of Stammering, with Suggestions as to Modern Methods. G. Hudson-Makuen, Philadelphia.
23 *Technic of Amputations with Special Reference to Osteoplastic Methods. A. V. Moschcowitz, New York.
24 Physical Decay of Northern Europeans in our Northwest. C. E. Woodruff, Manila, P. I.
25 *Treatment of Pulmonary Tuberculosis Based on the Assumption that the Dietetic Cause of the Disease is Lime Starvation. J. F. Russell, New York.
26 *The Incandescent and the Arc Light in Medicine. A. D. Rockwell, New York.
27 General Death-Rate from Malignant Growths in the Principal American Cities. R. F. Edwards, Newark, N. J.
28 Diseases of the Eye in Pellagra. A. B. Clarke, Plantersville, S. C.

20. **Lactic Acid Bacilli in Treatment of Suppurative Wounds.**—McLaughlin makes use of a powder produced from sterilized and dried solids of skim milk, inoculated with a culture of Bulgarian bacilli. This powder is used as a dusting powder in carcinoma, chancroid, purulent ulcers and septic wounds. He claims to have had good results.

21. **Total Ophthalmoplegia.**—Fernandez describes a case of total ophthalmoplegia due to syphilis and of nuclear origin. The eye could not be moved in any direction and there was ptosis and loss of sight, vision being limited to perception of light.

23. **Technic of Amputations.**—Moschcowitz thinks that the construction of a good stump is best accomplished by osteoplastic methods because the one important factor is that the end of the stump should be covered with normal bones and normal periosteum. This is accomplished by osteoplastic flaps.

25. A preliminary article on this subject appeared in *The Medical Record*, Nov. 27, 1909, and was abstracted in THE JOURNAL, Dec. 11, 1909, p. 2033.

26. **Incandescent and Arc Light in Medicine.**—Rockwell claims that the incandescent light of 500 candle power is very valuable for the relief of pain, especially of neuritis. In the incandescent light the glass globe intercepts the chemical rays, while the arc light gives all the effects of the solar rays. The incandescent light is of special value in the treatment of superficial skin lesions which is due to light and heat combined with chemical rays.

Lancet-Clinic, Cincinnati

December 4

29 Infant Feeding in Country Practice. C. W. Carter, Clinton, Ill.
30 Scarlet Fever—Pathology, Treatment and After-Care. P. T. Kilgour, College Hill, Ohio.
31 The Hypodermic Sea-Water Treatment of Disease. J. W. Carpenter, Cincinnati.

Medical Fortnightly, St. Louis

November 25

32 Touring the Lands where Medical Science Evolved. R. G. Eccles, St. Louis.
33 Prognostic Value of the Cutaneous Test in Tuberculosis. A. E. Taussig, St. Louis.

Virginia Medical Semi-Monthly, Richmond

November 12

34 Diseases of the Ear Complicating Measles and Scarlatina. W. A. Wells, Washington, D. C.
35 Two Cases of Pellagra. R. Parker, Williamsburg.
36 Bacteria in the Circulating Blood; Description of Technic for Demonstration by Staining Methods. M. P. Burnham, Harrisonburg.
37 Clubfoot. P. Green, Wytheville.

November 26

38 *Burn which Involved One-half the Body Area; Recovery. A. H. Barkley, Lexington, Ky.
39 Pellagra. J. S. deJarnette, Staunton.
40 The Heart in Acute Infectious Diseases. A. G. Brown, Richmond.
41 Successful Treatment of Parasyphilis. T. A. Williams, Washington, D. C.
42 Cursory Review of Pulmonary Tuberculosis. B. C. Keister, Roanoke.

38. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1769.

American Journal of Medical Sciences, Philadelphia

December

43 *The Emmanuel Movement. J. K. Mitchell, Philadelphia.
44 *Treatment of Chronic Bronchitis. B. Robinson, New York.
45 *Anatomic Study of Pericarditis. H. Brooks and L. Lippencott, New York.
46 *Normal Auscultatory Differences Between the Sides of the Chest. R. C. Cabot, Boston.
47 Practical Value of Spinal Percussion in Diseases of the Mediastinum. J. C. Da Costa, Philadelphia.
48 Resemblances Between the Clinical Effects of Pneumococcus and Meningococcus Infections. R. B. Preble, Chicago.
49 Diagnosis and Surgical Treatment of Acute Pancreatitis. J. B. Deaver, Philadelphia.
50 *Pathologic Relationships of Gastric Ulcer and Gastric Carcinoma. L. B. Wilson and W. C. MacCarty, Rochester, Minn.
51 Etiology and Pathology of Inguinal Hernia. W. L. Rodman, and C. W. Bonney, Philadelphia.
52 Action of Short Rotators on the Normal Abduction of the Arm; Their Action on Subacromial Bursitis and Allied Conditions. J. B. Stevens, Boston.
53 *Spastic Paraplegia Dating from Childhood (Little's Disease), Little or No Demonstrable Lesions in the Pyramidal Tracts. J. H. Rhein, Philadelphia.

43. **The Emmanuel Movement.**—In criticising the Emmanuel movement, Mitchell finds fault not with the use of proper mental means of cure, but with their improper, unwise, exaggerated and unscientific application by persons not fitted to judge the needs and limitations of the patients treated. Mental and moral therapy, he says, is as good and valuable a remedy as it always was, and although it will suffer discredit, as other good remedies have done, from ignorant enthusiasm, the new attention which the discussion has brought it will in the end do good. He says that the use of hypnotism in any form, manner, or degree is a matter which should be under legal control. It is a dangerous remedy in the hands of the best qualified medical man, and utterly to be condemned when used by any one not a qualified and responsible physician.

44. **Treatment of Chronic Bronchitis.**—In chronic bronchitis, hygienic measures are of primary importance; good ventilation, plenty of air and sunshine are essential; so are good food and rest. Clothing suitable to the season, and well selected, is necessary. Apparel too heavy, which overheats in the house and causes perspiration, only brings on fresh colds and aggravates the chronic disease. Food should be simple, well prepared, and nutritious; but heavy meals, especially at dinner, must be interdicted. Strictest moderation in sweets and alcohol should be enjoined; and tobacco, as a rule, hurts notably, except in mild quality and very small quantity in the evening. As to medication: internally, the iodids are the most useful drugs when properly used. When there is dyspnea, even slight, or nervous irritability shown in any way, Robinson combines the iodid with Hoffman's anodyne. Hydriodic acid may be alternated advantageously with terpene hydrate in fairly large doses. Invariably counter irritation to the chest should be insisted on, and kept up for many days, or weeks, with occasional intermissions when the skin becomes tender. Nothing, says Robinson, equals the compound tincture of iodin for its resolutive qualities, and the derivative effect toward the skin is all that is desirable.

Internally, Robinson is opposed to the use of sedatives or anodynes, unless imperatively required. The least objectionable are the combined bromids, henbane, or codein. A mercurial, followed by Rochelle or Epsom salts, is useful once a week or oftener, and diminishes cough and expectoration for a time in a pronounced degree. Vapor inhalations, especially of creosote, are very valuable when properly used, and if persisted in are more curative than any other one thing, unless it be change of climate and, at times, habits and occupation. The inhalations should be used with the perforated zinc inhaler. Internally, creosote may also be given with the happiest effects, in small repeated doses, and, combined with the best whisky and glycerin, will rarely disagree with the patient.

These patients cannot, should not, be housed. If so, they soon become worse, and their bronchial mucous membrane will not bear the slightest change without increased cough and expectoration. If a change of climate may be indulged in, one should go, preferably, to the sand hills of Georgia in winter, and in summer to the Adirondacks, at a moderate elevation. If permanent banishment seems desirable, California, not too near the coast, Robinson believes, is the one place of best resort.

45. **Pericarditis.**—According to Brooks and Lippencott, pericarditis is a lesion secondary in nature, rarely or never primary. The complication, for such it must be considered, is in most cases not in itself serious, except when of the suppurative variety, and in all instances it is more noteworthy as indicating the general condition in which it arises than on account of its own importance. It is, therefore, of little relative clinical importance, except as a diagnostic index, and in suppurative cases. True myocarditis is infrequently associated with pericarditis, but myocardial degeneration is commonly found and is not due to the pericarditis, although generally caused by the same condition as the pericardial inflammation. Death rarely results in pericarditis from this lesion. Independent myocardial degeneration leading to dilatation of the heart, and especially fatty degeneration of the myocardium, is a predisposing or determining factor toward pericarditis. Overaction of the heart may induce pericardial inflammation. Serofibrinous pericarditis is in most instances an evidence of generalized bacteriemia. Chronic adhesive pericarditis is a lesion of great frequency, often impossible of diagnosis, and in itself of very little clinical significance or importance. Serious symptoms arise from adhesive pericarditis only when the myocardium itself is seriously diseased, either concomitantly or quite independently. The signs usually cited as characteristic of pericardial synechia develop only when mediastinal inflammation or adhesions of marked degree are present in addition to the pericarditis.

46. **Normal Auscultatory Differences.**—Attention is called by Cabot to what he believes to be a fairly common difference between the right and the left base posteriorly. In a series of 250 healthy persons recently examined with reference to this point, he found this difference present in 67 per cent. In these cases the breathing at the left base was notably louder and harsher than that at the right. In the majority of these it had also the quality described by the Germans as "rough." Cabot has nothing of importance to say as to the cause of this difference. Obviously, the only importance of the sign is that in case it is confirmed and established by the observations of other physicians it will slightly complicate our process of reasoning in regard to the soundness or unsoundness of the lungs as based on physical examination.

Cabot recently examined fifty normal chests with the subject in the lateral recumbent position. Briefly stated, the differences are as follows: (a) On palpation, increased tactile fremitus on the lower side; (b) on percussion, a combination of dulness with a tympanic quality on the lower side; (c) on auscultation, an increase in the intensity of the spoken and of the whispered voice, with a slight prolongation of expiration and a raising in its pitch. Summarily stated, these signs amount to the indications of a slight degree of condensation of the lung, such as we see in the upper part of a chest when a pleural effusion is present below.

50. **Gastric Ulcer and Gastric Carcinoma.**—As the pathologist examines stomach specimens from the surgical clinic he constantly observes the various steps in the following sequence: 1. Chronic ulcers from the centers of which the mucosa has disappeared leaving a scar tissue base. 2. In the overhanging borders of the ulcers the mucosa is proliferating. 3. Deep in the borders many groups of epithelial cells have been nipped off by scar tissue and are exhibiting all stages of aberrant proliferation with infiltration of the surrounding tissue. 4. Metastases are forming in the lymphatics of the stomach wall and adnexa. Wilson and MacCarty say that in a small percentage of patients operated on the condition is too far advanced to show these steps, and a very small percentage—probably not over 2 per cent.—give evidence of rapid aberrant epithelial proliferation and infiltration without any sign of previous ulcer. Adopting Adami's classification one may therefore correctly designate most gastric carcinomas as "blastomas originating from unipotential cells of postnatal displacement," although it is probable that a very small number are "blastomas originating from unipotential cells that assume neoplastic characters without displacement and rapidly assume malignancy."

53. **Spastic Paraplegia.**—A man, aged 71, presented spastic paraplegia dating from early childhood. A study of the brain

and spinal cord revealed nothing of importance, excepting a fineness of the fibers in the crossed pyramidal tracts. In Rhein's opinion this case antedated the age of five years (as the patient stated), as his intelligence was below normal, and it could not be expected that at the age of 64 (when he was admitted) an accurate history of his early infancy could be obtained. The result of the anatomic study makes it possible that this case was one of Little's disease, although without definite history of the onset, this claim cannot be made definitely. Rhein considers it extraordinary, that an individual could live to the age of 71 years, suffering for certainly the greater part of his life from spastic paraplegia, without its being possible to demonstrate more pathologic change in the nervous system than the slight and perhaps indefinite one mentioned. It seems to confirm the theory that the fine caliber of nerve cells offered resistance to the transmission of motor impulses, which, for their perfect conduction, require well-formed and large nerve fibers.

Montreal Medical Journal

November

54 Diagnosis of Surgical Diseases of the Kidneys. R. P. Campbell, Montreal.
55 Wassermann Reaction in Syphilis. W. Hutchinson, Montreal.
56 Anatomic Aspect of Fractures. J. A. Nutter, Montreal.
57 Museum Methods Observed in the Principal Pathologic Museums of London. J. Kaufmann, Montreal.
58 Case of Renal Calculus. J. M. Elder, Montreal.
59 Complicating Micro-organisms and their Relation to Hemoptysis in Pulmonary Tuberculosis. A. H. Caulfield, and J. C. Beatty, Gravenhurst, Canada.

Old Dominion Journal of Medicine and Surgery, Richmond

November

60 Use and Abuse of Rest in Therapeutics. R. C. Cabot, Boston.
61 Four Years in Tuberculosis Dispensary Work. B. M. Randolph, Washington, D. C.
62 Ocular Symptoms of Diseases of the Accessory Sinuses. W. C. Posey, Philadelphia.
63 Cases of Pellagra. H. R. Slack, and W. R. McCall, La Grange, Ga.
64 *Pellagra in Virginia. D. Vanderhoof, Richmond.

64. Abstracted in THE JOURNAL, Oct. 24, 1909, p. 1421.

St. Louis Medical Review

November

65 *Advantage of Combined Intraperitoneal and Extraperitoneal Ureterolithotomy for Stone in the Lower Ureter. E. Jonas, St. Louis.
66 Recollections of a London Medical School Thirty Years Ago. A. B. Clarke, N. Devon, Eng.
67 Killing Our Own Business. F. C. Palmer, Kansas City, Mo.

65. Abstracted in THE JOURNAL, Oct. 2, 1909, p. 1121.

Journal Arkansas Medical Society, Little Rock

November

68 *Postoperative Ileus, Gastroduodenal in Type. A. Watkins, Little Rock.
69 Tetanus. G. A. Warren, Black Rock.
70 Office Treatment of the More Common Diseases of the Rectum. C. P. Meriweather, Little Rock.
71 Control Work in Bovine Tuberculosis. W. Lenton, Little Rock.

68. **Postoperative Ileus.**—Results, says Watkins, depend on an early diagnosis, with prompt treatment. All food and drink must be withdrawn from the stomach. The stomach tube is to be used early and often, the foot of the bed raised and the patient turned on the side, preferably the left, or on the abdomen; this maneuver should be preceded by gastric lavage. Gentle massage of the abdomen from below upward is beneficial, as are turpentine stupes. Rectal saline injections and nutrient enemata are strongly indicated. Eserin salicylate, gr. 1/50 to 1/100, hypodermically, offers the strongest medicinal stimulant to peristalsis. When a surgical patient continues to vomit beyond the usual postanesthetic period, inspect the abdomen immediately, removing whatever dressings are necessary. The motif of successful treatment is frequent antiseptic gavage, but the keynote is early diagnosis and prompt measures for relief.

Wisconsin Medical Journal, Milwaukee

November

72 Clinical Importance of the Sacroiliac Joint. E. Evans, La Crosse.
73 *Experimental Study of Cancer. C. H. Bunting, Madison.
74 *An Aspect of Cerebral Surgery, Based on the Therapeutic Significance of Acute and Chronic Intracranial Hypertension. J. L. Yates, Milwaukee.
75 *Recent Epidemic of Spinal Paralysis in Wisconsin. J. Manning, Eau Claire.
76 Pathology of Spinal Paralysis. D. Hopkinson, Milwaukee.
77 Treatment of Syphilis. O. H. Foerster, Milwaukee.

73, 74, 75. Abstracted in THE JOURNAL, Aug. 21, 1909, pp. 647, 648.

American Journal of Urology, New York

November

78 *Advantage of the Combined Intraperitoneal and Extraperitoneal Ureterolithotomy for Stones in the Lower Ureter. E. Jonas, St. Louis.
80 Relative Advantages of Catheterization and Operation in Treatment of Prostatic Enlargement. H. T. Herring, London, Eng.

78. Abstracted in THE JOURNAL, Oct. 2, 1909, p. 1121; also published in *St. Louis Medical Review*, November, 1909.

The Laryngoscope, St. Louis

November

81 Oculo-Orbital, Intracranial and Cerebral Complications of Diseases of the Nasal Accessory Sinuses. A. Onodi, Budapest.
82 *Present Status of Surgical Treatment of Chronic Suppurative Disease of the Nasal and of the Aural Cellular Spaces. J. N. Reik, Baltimore.
83 Facial Paralysis Due to Aural Lesions. D. J. G. Wishart, Toronto.
84 *Complicated Case of Acute Mastoiditis, of Unusually Rapid Progress Resulting Fatally; Autopsy. A. S. Kaufman, Philadelphia.
85 An Instrument Which Facilitates the Removal of the External Nasal Wall. C. W. Bishop, Minneapolis, Minn.
86 Primary Tuberculosis of the Fauces, Posterior Pharynx and Palatal and Lingual Tonsils, Cured by Tuberculin Injection. J. R. Winslow, Baltimore.
87 The Pars Sigmoidalis Sinus Lateralis and Its Relation to Processus Mastoideus Ossis Temporalis. H. J. H. Hoove, Des Moines, Iowa.
88 Direct Laryngoscopy in Diagnosis and Treatment of Papillomata of the Larynx. R. H. Johnston, Baltimore.
89 Chronic Antral Suppuration. W. R. Butt, Philadelphia.
90 Treatment of Cicatricial Stenosis of the Larynx by the Methods of O'Dwyer and Rogers. D. B. Delavan, New York.
91 Present Status of Oral Surgery. H. G. Langworthy, Dubuque, Iowa.

82. **Diseases of the Nasal Accessory Sinuses.**—Onodi says that there can be no doubt of the causal relation between diseases of the posterior accessory cavities and disturbances of vision, yet we must emphasize the fact that both conditions may occur simultaneously, accidentally but independently. Ophthalmologists have cited numerous causes for neuritis and atrophy of the optic nerve. Neuritis retrobulbaris may also recover spontaneously after simple treatment or without therapeutic measures. There are cases in which the unfavorable progress of the optic neuritis was unchecked by operative measures. Finally there are cases of tumors of the nasal cavity, empyema of the posterior accessory cavities, and extensive bone destruction in which vision remains undisturbed. No disturbances of vision may occur with extensive pathologic processes, while, on the other hand, slight disturbances in the nasal cavity may cause disturbances of vision. Onodi emphasizes the fact that disturbances of vision or blindness arising from other causes may be independent of empyema of the posterior accessory sinuses. The simultaneous but accidental affection of these areas may lead to error, and may be detrimental to a clear understanding and development of this interesting question.

84. **Acute Mastoiditis.**—The case reported by Kaufman was of interest on account of the great rapidity with which not only the surrounding structures were involved, but also organs in other parts of the body, by metastasis. The points of particular interest in the postmortem examination are as follows: On the superior surface of the left ventricle of the heart there was a beginning milk spot. The left lung showed crepitus throughout; on the lower lobe, along the middle of the fissure, was a hard, indurated area surrounded by hemorrhagic infiltration. The center of this mass was necrotic. There was an area similar to this on the base of the upper lobe. The right lung showed scattered pyemic emboli and the peribronchial lymph nodes were enlarged. The spleen was enlarged, dark red in color, and showed hyperplasia. The cortices of the kidneys were bulging. The liver was large and mottled and the under surface showed a small abscess 5 cm. in diameter. On section, the liver showed fatty infiltration. Peyer's patches were swollen. The meninges were slightly edematous, and there was slight injection of the meningeal

vessels. The right temporosphenoidal lobe, posteriorly and inferiorly, contained a circumscribed ovoidal cavity which extended into the underlying brain substance for a distance of 2 cm. The bottom of the cavity was composed of grayish-pink, necrotic, granular substance. The margin of the cavity was composed of similar tissue. The remaining brain substance contained nothing unusual. The lateral sinus of the right side was obliterated at a point where it was exposed through the mastoid process. This opening perforated the petrous portion of the temporal bone, making an opening 8 cm. in diameter and connecting with the cavity described in the brain. The sinus as it passed through the base of the skull contained a purulent grayish-white substance.

Alabama Medical Journal, Birmingham

November

92 Ophthalmic Memoranda. S. L. Ledbetter, Birmingham.
93 Accessory Sinus Disease. E. W. Rucker, Birmingham.
94 The Anesthetic Index. J. R. Dawson, Birmingham.
95 One Hundred and Thirty-Two Deliveries at the Salvation Army Rescue Home. R. H. Coston, Birmingham.
96 Etiology and Pathology of Pancreatic Disease. H. E. Mitchell, Birmingham.
97 Indications for Operation in Gall-Stone Disease. E. M. Robinson, Birmingham.

Iowa Medical Journal, Des Moines

November

98 Therapeutics a *Sine Qua Non* in Surgery. E. E. Munger, Spencer.
99 *The Old and the New Medicine. G. E. Crawford, Cedar Rapids.
100 Observations Concerning Tuberculin. W. H. Bickley, Waterloo.
101 Vaccine Therapy in General Practice. H. M. Bruce, Cedar Falls.

99. Abstracted in THE JOURNAL, July 10, 1909, p. 139.

Southern Medical Journal, Nashville

November

102 *Medical Education—Past, Present, Future. J. A. Witherspoon, Nashville, Tenn.
103 The Training of the Gynecologist. H. A. Royster, Raleigh, N. C.
104 Treatment of Puerperal Eclampsia by Cesarean Section. D. L. Maguire, Charleston, S. C.
105 Hysterectomy. R. A. Barr, Nashville.
106 Treatment of Peritoneal Infections in the Light of the Protective Nature of Peritonitis. C. W. Barrett, Chicago.
107 Our Medical Interests. I. Dyer, New Orleans.
108 Extraction of Cataract in the Capsule. H. Wood, Nashville.
109 Tuberculin Treatment of Tuberculosis. O. N. Bryan, Nashville.
110 *Case of Typhoid. T. E. Fuller, Texarkana, Ark.
111 Indications for Treatment of Movable Kidney. J. A. Gaines, Nashville.
112 The Impress of English Thought on Medicine. F. A. Jones, Memphis, Tenn.
113 Pretabetic Laryngeal Spasm. H. H. Martin, Savannah, Ga.
114 *Prophylaxis of Pellagra. C. H. Lavinder, U. S. P. H. and M.-H. S.
115 Hookworm Disease in its Relation to the Negro. C. W. Stiles, U. S. P. H. and M.-H. S.

102. Abstracted in THE JOURNAL, Nov. 13, 1909, p. 1674, also published in *The Lancet-Clinic*, Oct. 29, 1909, and the *Louisville Monthly Journal of Medicine and Surgery*, November, 1909.

110. **Typhoid.**—Otitis media as a complication of typhoid has occurred in 2.5 per cent. of the collected cases. A male, aged 21, presented the picture of a typical case of typhoid of average severity, temperature ranging from 101 to 104 F. The case was progressing nicely, and the temperature gradually falling when on January 4, the patient complained of pain in his left ear, and on the same day a purulent discharge appeared. On January 13, the other ear became involved. The temperature up to this time had been but little influenced by the complication. On January 17, considerable tenderness over the mastoids was noticed. Pain became severe and continuous and the temperature rose to 105. On January 22, the condition continued to grow worse, so both mastoids were drained. The patient reacted nicely; the pain and tenderness subsided and good drainage was maintained. For several days the patient improved, and it seemed that he would recover. After this, however, the temperature rose and the patient sank into a typical typhoid state, with low muttering delirium, coma-vigil and all the severe nervous symptoms incident to a profound toxemia, from which he died February 2. At the autopsy, healthy granulations lined the mastoid; no pus was present.

114. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1770.

Journal of Medical Research, Boston

October

116 *Lesions of the Skin and the Tumor Formations in Xeroderma Pigmentosum. W. T. Councilman and G. B. Magrath, Boston.
117 Surgical Treatment of *X*-Ray Carcinoma and Other Severe *X*-Ray Lesions. C. A. Porter, Boston.
118 *Pathologic Histology of Chronic *X*-Ray Dermatitis and Early *X*-Ray Carcinoma. S. B. Wolbach, Albany, N. Y.
119 Chronic Pancreatitis with Tumor-like Nodules in the Cat. T. Ordway, Boston.
120 *Tumors in the Common Fowl. E. E. Tyzzer, and T. Ordway, Boston.
121 *Spontaneous Tumors in Mice with Observations on the Influence of Heredity on the Frequency of their Occurrence. E. E. Tyzzer, Boston.
122 Inheritance in Mice with Reference to Their Susceptibility to Transplanted Tumors. E. E. Tyzzer, Boston.
123 *Nature of the Reaction of Tissues of Susceptible and Non-Susceptible Mice to an Incurable Tumor. A. N. Burgess, Boston.
124 *Effect of Trypsin on Cancer and on Germ Cells in Mice. S. Rushmore, Boston.

116. **Lesions of the Skin.**—Two fatal cases were studied; in the skin there was atrophy of the corium and its appendages, and of cells of the epidermis combined with an excessive formation of the horny layer and focal pigmentation. There were horny excrescences and tumor-like masses of epithelium in places, but the tumors did not penetrate below the corium and there were no metastases either in lymph nodes or internally. The pigment was intracellular. Sunlight would most probably be the direct etiologic agent.

118. **Histology of Chronic X-Ray Carcinoma Lesions.**—The most important fact in Wolbach's study is that after sufficient injury has been done complete repair does not take place. This failure is ascribed chiefly to changes in the blood supply. The transition of this dermatitis into carcinoma is explainable, to some extent at least, on the basis of degenerative changes in the blood vessels. Epithelial proliferation is found constantly over degenerative foci in the corium and the evidence points strongly to the epidermis as the least susceptible of the tissues of the skin to direct injury by the *x*-ray. The latent period of months or years between the production of the lesion and its transition into carcinoma is marked by changes in the connective tissue, presumably also changes in the nutrition of the cells, and constant proliferative processes on the part of the epidermis. The growing of the epidermis into areas of dense collagenous material points to increased proliferative power, and the hypothesis is suggested that a slow increase in power of growth takes place, finally resulting in the epithelial cells obtaining their sustenance at the expense of other living tissues.

120. **Tumors in the Common Fowl.**—Inoculation of lymphoma tissue from two cases in the fowl into normal hens gave negative results, but inoculation of a bit of one of these tumors into the pectoral muscle of the hen in which the tumor arose resulted in the growth of a tumor at the site of the inoculation.

121. **Spontaneous Tumors in Mice.**—In mice primary tumors of the lung are by far the most frequent. There are two types, the papillary cystadenoma and the epidermoid carcinoma. The frequency of tumors in three families descended from three females with tumors indicates that the development of tumor is influenced by certain invisible inherited characters or qualities. Offspring of parents one of which had a primary tumor showed a greater frequency of tumor than offspring of parents neither of which had a tumor.

123. **Reaction of the Tissues of Mice.**—In the non-susceptible mice there is developed an active immunity, the mechanism of which is apparently an inflammatory reaction which interferes with the nutrition of the tumor.

124. **Trypsin in Cancer.**—Trypsin had no appreciable effect in causing cancer in mice to disappear or in inhibiting the growth and function of the germ cells.

Providence Medical Journal

November

125 Phobias, or the Fear of Disease. J. B. Huber, New York.
126 Interruption of Pregnancy. H. G. Partridge, Providence.
127 Value of the *X*-Ray in the Treatment of Psoriasis. D. L. Richardson, Providence.

Journal of Biological Chemistry, Baltimore

November

128 *The Purins and Purin Metabolism of the Human Fetus and Placenta. H. G. Wells and H. J. Corper, Chicago.
129 Soluble Chitin from *Limulus Polyphemus* and its Peculiar Osmotic Behavior. C. L. Alsberg and C. A. Hedblom, Boston.
130 *Study of the Intestinal Bacteria. A. I. Kendall, New York.
131 Chemistry of Bacterial Cellular Proteins. S. M. Wheeler, Ann Arbor.

128. **Purin Metabolism of Human Fetus and Placenta.**—The investigations of Mendel and Mitchell have shown that the enzymes involved in purin metabolism in the embryo pig, appear one at a time at various periods of antenatal or early postnatal life. Wells and Corper have studied the enzymes of the human fetus and find that several enzymes which accomplish purin metabolism in the human organism are developed independently as to time during the course of intrauterine life, the fetus at term being equipped with the same enzymes as the adult. The enzymes which form hypoxanthin and xanthin from guanin and adenin are formed first and later xantho-oxidase is formed which converts hypoxanthin and xanthin into uric acid. The uricolytic enzyme which is capable of destroying uric acid by oxidation is not found in human tissue, according to Wells. He concludes that the placenta does not aid in the purin metabolism of the fetus.

130. **Study of the Intestinal Bacteria.**—Kendall finds that a change from protein to carbohydrate diet is followed by a marked change in the character of the bacteria present in the feces. Carbohydrate diet favors the growth of acidophilic bacteria while a protein diet allows the proteolytic organisms to establish themselves and become predominant. The prevalence of the latter class of organisms in the intestines is accompanied by the appearance of phenolic bodies, especially indican, in the urine. He proposes to use a carbohydrate medium like an acid dextrose broth for the culture of the acidophilic bacteria, so that they may be recognized in a mixture in which proteolytic organisms predominate. The latter do not grow well on the carbohydrate medium and hence cannot overwhelm organisms of the acidophilic type. Conversely milk and gelatin can be used to favor the growth of proteolytic organisms and thus enable a separation of them when a large number of acidophilic organisms are present. By inoculating various media with the feces, it is possible to form a judgment as to the character of the predominating organisms in the intestinal tract. If proteolytic organisms are present, the milk fermentation tubes will become the seat of great bacterial activity, the gelatin is liquefied and milk is markedly peptonized. The use of these selective media makes it possible to judge as to the completeness of the bacterial response to the nature of the diet. For example, if the experimental animal is on a carbohydrate regimen, the presence or absence of growth in protein media will indicate the presence or absence of proteolytic bacteria, since the acidophilic organisms do not grow well in these media and cannot, therefore, inhibit the growth of these organisms. Conversely, with protein diet, the presence or absence of acidophiles may be determined by inoculating the mixed fecal flora into acid dextrose broth, which is unfavorable for the development of the proteolytic types. These determinations may be made roughly quantitative for the different types by inoculating definite amounts of the mixed fecal flora into appropriate media.

Journal of Advanced Therapeutics, New York

November

132 The Electric Conception of Matter. H. McIntosh, Boston.
133 Treatment of Neurasthenia. W. L. Savage, New York.
134 Standardization of High Potential Electric Currents (continued). E. C. Titus, New York.
135 Report of Committee on Induction Coils and Alternators. F. A. Davis, Boston.

Journal South Carolina Medical Association, Florence

November

136 *Pellagra. S. M. Sandwith, London, Eng.
137 *Complement Fixation with Lecithin as Antigen in Pellagra. C. C. Bass, New Orleans.
138 *Pathology of Pellagra. H. F. Harris, Atlanta, Ga.
139 Pellagra—Its Etiology, Pathology, Diagnosis and Treatment. C. W. G. Roher, Baltimore.
140 *Transfusion in Pellagra. H. C. Cole and G. J. Winthrop, Mobile, Ala.
141 Pellagra in Yucatan. G. F. Gaumer, Izamal, Yucatan, Mexico.
142 Symptomatology of Pellagra. J. J. Watson, Columbia.
143 *Is Pellagra Communicable or Hereditary? H. H. Griffin, Columbia.
144 Theory of the Etiology of Pellagra and the Use of Junod's Blood Derivations. G. Werber, Washington, D. C.

136, 137, 138, 140, 142, 143. Abstracted in THE JOURNAL, Nov. 13, 1909, pp. 1659, 1663, 1665, 1666, 1668, 1669.

Journal of the Kansas Medical Society, Kansas City

November

145 Scar Tissue in the Upper Respiratory Tract. W. E. McVey, Topeka.
146 Mental Derangements after Infectious Disease. H. L. Chambers, Lawrence.
147 Etiologic Factors Producing the Nonsuppurative or Dry Catarrh of Middle Ear. W. H. Graves, Pittsburg.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The Lancet, London

December 4

1 Looking Back. Sir H. Morris.
2 *Surgical Treatment of Puerperal Pyemia. E. Michels.
3 *Treatment of Nevi and Other Cutaneous Lesions by Electrolysis, Cautery and Refrigeration. E. R. Morton.
4 *The Influenza Bacillus the Cause of an Epidemic of Bronchopneumonia. T. S. Wilson and J. Miller.
5 External Anthrax. R. Herley.
6 *Local Sepsis as a Factor in Rheumatism and Gout. C. W. Wirgman and H. W. Turner.
7 The Medical Profession and the Poor-Law Medical Service. Major Greenwood.

2. **Surgical Treatment of Puerperal Pyemia.**—In three cases of severe puerperal pyemia Michels tied the left ovarian vein, preventing in this way the further propagation of the septic process and obtained a rapid and complete recovery in two apparently hopeless cases. One patient died.

3. **Treatment of Nevi.**—Morton favors the carbon dioxid crayon in the treatment of nevus. He says that to say that solid carbon dioxid is merely a caustic, as some have asserted, is not quite correct. All caustics, strictly so-called, destroy tissue immediately—*e. g.*, the actual cautery and various chemical substances, but carbon dioxid does not do so. After the part has thawed out, the whole of the treated area is still living, as evidenced by the intense reaction which sets in. Local death may occur later, owing to inflammatory stasis; but this is the result of a vital reaction, and not an immediate result of the application of the irritating substance.

4. **Influenza Bacillus Cause of Bronchopneumonia.**—Pathologically, the chief points of interest in the cases reported by Wilson and Miller are the epidemic nature of the disease, and the occurrence of the influenza bacillus as the only organism present in the lung in one of the cases. From the occurrence of the cases at one and the same time, and from the fact that cultures on ordinary media failed to show any growth in the other fatal case, one may fairly conclude that the causal germ in all the other cases was the influenza bacillus. The occurrence of this germ in bronchopneumonia has long been recognized, and the fact that it is not infrequently the only organism present in the lungs is emphasized by Fraenkel. The main point of interest in the present instance is, therefore, the occurrence of the influenza bacillus as a cause of a number of cases of bronchopneumonia arising so obviously in connection with one another as to warrant the term epidemic.

6. **Local Sepsis in Rheumatism and Gout.**—Wirgman and Turner report 42 cases of rheumatism and gout in the majority of which they believe pyorrhea to have been the direct cause because a cure of the local condition was promptly followed by a subsidence of the constitutional symptoms.

British Medical Journal, London

December 4

8 Modern University Ideals. G. A. Gibson.
9 *Greek Medicine in Rome. Sir T. C. Allbutt.
10 *Some Uses of Opium. E. Smith.
11 The Pituitary Body. W. B. Bell.
12 Kala-Azar in the Far East. P. W. Bassett-Smith.

9. Also published in *The Lancet*, Nov. 27, 1909.

10. **Some Uses of Opium.**—It is often forgotten, says Smith, that opium has stimulating as well as sedative properties, and that as a general stimulant to the nerves, the brain, and all the organs of life its value even for this quality alone entitles it to a high place in the esteem of the practical physician. Opium and morphin are not quite the same in this respect.

Of the two it is in the former that the quality is most active. The stimulating effect is best brought out by the use of small doses given at convenient intervals, for in a full dose the sedative influence of the drug is so decided that any primary stimulating effect passes off too quickly to be noticeable. This stimulating action is well seen in cases of indolent ulcers of the skin and mucous membrane. Such sores which had resisted previous treatment will be found to show a surprising improvement after only a few doses of the remedy. The pale, unhealthy looking surface becomes red and is soon covered with closely-set granulations, while its secretion changes from a thin serous fluid to healthy-looking pus. This invigorating influence can be turned to account in the case of obstinate sores occurring in cachectic children. The ulcerative stomatitis which is so common among the ill-fed and badly-nourished children of the very poor often shows little disposition to heal even when treatment is reinforced by a generous diet and healthy surroundings. When repair is thus at a standstill, a few drops (2 to 5) of laudanum, given twice a day, quickly induce a welcome change in the local conditions and start an improvement which goes on smoothly to a cure.

The nervous trepidation called "stage fright" may be forestalled and disarmed by a small dose, five or six drops, of laudanum taken half an hour or so before the trial is to begin. Again, the nervous trembling and depression which may be induced by shock and are apt to follow a surgical operation, are amenable to the same influence. The above dose, repeated, if necessary, several times, at intervals of half an hour, is usually followed by tranquility and sleep. The same treatment will go far to relieve the distress of dying persons. Under the influence of a few drops of the tincture the painful uneasiness abates, and is succeeded by a period of restful calm, which may be maintained by judicious repetitions of the remedy until the close. Again, the profound mental depression which sometimes afflicts elderly people, making their lives a burden to themselves and to their relatives, may be alleviated by the same means. In this, as in the preceding cases, the drug acts as a stimulant and something more; it quiets the nervous irritability and gives a welcome spur to jaded nerves.

Medical Press and Circular, London

November 10

13 Suppuration in the Accessory Nasal Sinuses. J. Donelan.
14 Darwinism and Medicine. J. A. Lindsay.
15 Natural History and Diagnosis of Cirrhosis of the Liver. W. B. Warrington.
16 Arteriosclerosis and Allied Conditions. S. H. Hall.

November 17

17 Vaccine Treatment in General Practice. R. J. Rowlette.
18 Darwinism and Medicine (continued). J. A. Lindsay.
19 Study and Treatment of Acute Peritonitis. Professor Federman.
20 The Influence of the Tissues on Disease. J. Ritchie.
21 *Fracture of the Axis Vertebra, Reduction; Recovery. A. Bruce and D. Wallace.

21. Fracture of Axis Vertebra.—The patient, a ship's engineer, was stooping oiling his engine when someone called his name, causing him to turn his head sharply. He was conscious of a sudden pain in his neck, and felt a lump just below the occiput. He found that he had lost the power of moving his head from side to side, or anteroposteriorly, with the exception of a slight amount of forward movement. Apart from this, he had comparatively few symptoms and was able to continue his voyage. He was seen by a medical man in Helsingsfors, who diagnosed the condition as rheumatism, and on his return to Edinburgh, in four weeks' time, he was seen by his own physician, who found in addition to the fixation of the head and a projection at the back of the neck, some evidences of pressure on the cord in the shape of pains in the arms and legs, and occipital neuralgia. Skiagrams were taken which showed that the atlas vertebra was dislocated forward, and probably that the odontoid process was fractured. As no urgent symptoms were present, it was thought inadvisable to reduce the deformity.

Five months later as he was sitting on a chair, one of his children snatched a shawl which was around his neck and gave him a sudden jerk. He again had severe pain in the neck, which was quickly followed by signs of pressure on the cord, weakness of the arms, difficulty in walking, and retention of urine. As these symptoms increased in severity, he was sent to the hospital. On admission he was found to be completely paralyzed in all four extremities, with the exception of slight power of moving the fingers of the left hand. His diaphragm was also paralyzed, the abdomen falling in with inspiration, and his respirations, which were extremely shallow, were carried on almost entirely by the aid of the extraordinary muscle of respiration. His superficial reflexes (abdominal and cremasteric) were abolished; the tendon jerks of both arms and legs were exaggerated; there was a double Babinski, double ankle clonus, and a slight jaw-jerk.

As the patient's condition was extremely critical, it was decided to attempt reduction. A towel was passed under the neck over the projecting axis vertebra and was held by an assistant, while Wallace made gentle traction on the cranium. After a little manipulation the bones were felt to come into a more normal position with a slightly grating sound and immediately thereafter the diaphragm was noticed to move freely. Respiration was soon reestablished, and in half an hour or so the patient had regained the power of moving his limbs. His head was kept steady between sand-bags, one being also placed under the axis vertebra so as to allow the backward drag of the head to keep the bones in position. The man was then put up in a poro-plastic splint so as to immobilize the head absolutely. After reduction he had an attack of congestion of the lungs lasting for a few days, but except for that he improved steadily and is now almost perfectly well though he still wears a fixation apparatus.

Clinical Journal, London

November 17

22 The Period of Repose in Acute Appendicitis. C. B. Lockwood.
23 Diagnosis of Uterine Hemorrhage. H. MacNaughton-Jones.

Journal of Tropical Medicine and Hygiene, London

November 15

24 Ankylostomiasis in the Malay States. E. N. Graham.
25 Surgery of Injuries from Wild Beasts. R. Howard.
26 Use of Quinin Alkaloid. R. Howard.

Journal of Obstetrics and Gynecology of the British Empire, London

November

27 *Statics of the Pelvic Viscera; Their Relationship to the Operative Treatment of Uterovaginal Prolapse. G. A. Casalis.
28 *Anatomy of Tubal Convolutions and the Mechanism of Tubal Occlusion. J. Young.
29 Puerperal Septicemia with Double Septic Pneumonia, with Effusion—Death Thirty-four Days After Confinement. F. A. Simpson.

27. Statics of Pelvic Viscera.—Casalis summarizes his views as follows:

1. The pelvic viscera are both suspended and supported organs.
2. The pelvic floor forms one solid mass separating the pelvic cavity from the exterior, just as the anterior abdominal wall separates the abdominal cavity from the exterior.
3. It includes part of the viscera as well as the so-called ligaments of the uterus, of which they are an integral part.
4. Relaxation of part or the whole of this fibromuscular, cellular, vascular and peritoneal diaphragm results in the production of the different forms of pelvic displacements.
5. Relaxation of the upper pelvic segment leads to retrodeviations and partial uterine descent; that of the lower to cystocele, colpocele and rectocele; relaxation of the upper and lower segments to classical prolapse. The intensification of the combined conditions is productive of hernia of the pelvic contents or total prolapse.
6. Relaxation of the upper pelvic segment is curable by the so-called round ligament operations, of which Alexander's and Simpson's are the best types. Descensus uteri, especially in middle-aged women, demands ventrofixation combined with plastic operations on the vagina and perineum.
7. Prolapse should always be operated on. Classical prolapse should be operated on by a combined anterior and posterior colpoperineorrhaphy, with union of the paravaginal tissues in the middle line, and a myorrhaphy of the levator ani and frequently also in addition a ventrofixation; cystocele and rectocele by the combined perineal and vaginal plastic operations.
8. Hernia of the pelvic contents justifies all these preceding operations, but may best be treated by vaginal or abdominal hysterectomy with suture in the middle line, and if possible to the abdominal incision of the over-stretched perivascular sheaths. In extreme cases, the interposition operation may be tried, or when everything else fails P. Müller's excision of the whole vaginal canal.

28. Anatomy of Tubal Convolutions.—It is deemed probable by Young that the recession of the fimbriæ in cases of hydrosalpinx and tubal pregnancy is dependent on, and occurs during, distention of the ampullary portion of the tube. In tubal gestation the tube becomes distended to accommodate the growing ovum situated in its wall, or the products of abortion—ovum and blood—which escape into the tube lumen

as the result of internal rupture. In hydrosalpinx the distention is due to the gradual accumulation of the fluid contents of the tube. The formation of a hydrosalpinx and, in all probability, of a hematosalpinx in the outer portion of the tube can occur only after the establishment of an obstruction of the abdominal opening. There must be, also, in the case at any rate of the hydrosalpinx, an obstruction on the inner side. This, in view of the more viscid nature of the blood and the fact, moreover, that it clots soon after being poured out, is probably not a necessity for the production of a hematosalpinx. As the consequence of a salpingitis or the congestion associated with tubal pregnancy, the fimbriæ become swollen and, as expansion in an outward direction is prevented by this ring, they become pressed together; this leads to a functional occlusion of the opening. The tension to which the tube is subjected by the increasing contents leads to a stretching and thinning out of the tubal walls. The rigidity of the peritoneal ring tends to prevent the ostium from becoming opened out. In some cases, however, the ring, also, gives way, and the relief of the obstruction at the outer end thus produced may result in an escape of contents. The tube, then, probably more or less regains its normal diameters and there may be present only a slight, if any, alteration in the fimbriæ. If the ring holds out, a different sequence of events probably ensues.

The mucous membrane of the tube and the inner coat of muscle, are intimately adherent the one to the other, and together may be considered to form a well-supported tube lying within a loosely fitting and distensible sheath formed by the outer muscle coat and peritoneum. The inner "tube" is strengthened on its internal aspect by the longitudinal mucous ridges which enable it to withstand, probably with a considerable measure of success, any longitudinal strain. For this reason, the distending force acting from within will lead to a stretching of the inner portion of the tube wall more in the transverse than in the longitudinal direction. This disproportion between the degrees of expansion of the tube in the different diameters is, however, to a certain extent compensated for by the fact that, with a taut peritoneal ring, the loose fit between the two parts of the tube wall enables the mucosa and inner stratum of muscle to be drawn within the outer muscle layer and peritoneum to take part in the formation of the wall of the tube sac. The same process in all likelihood occurs to some extent even with a giving way of the peritoneal ring, but as this means a certain degree of inward movement of the outer portion of the tube wall the recession of the fimbriæ is obscured. It would seem probable that after the disappearance of the fimbriæ within the tube lumen, the occlusion of the ostium is completed either by a fusion of the fimbriæ with one another or by a union of the margins of the "peritoneal ring."

British Journal of Children's Diseases, London

October

30 Congenital Heart Affections, Especially in Relation to the Diagnosis of the Various Malformations (continued). G. Carpenter.
31 *Diagnosis of Chronic Pulmonary Tuberculosis in School Children. J. Allan.
32 Genetous Type of Imbecility with Single Ptosis. J. B. Barrett.
33 Epidemic Cerebrospinal Meningitis in Paris. J. D. Rolleston.

November

34 Chronic Pemphigus; Notes of Bacteriologic Findings. A. J. Cleveland and G. P. C. Claridge.
35 Etiology of Congenital Word Blindness; An Example. W. J. Rutherfurd.
36 Delayed Chloroform Poisoning. J. B. Barrett.
37 The Cremasteric Reflex. E. M. Corner.
38 Spontaneous Intracystic hemorrhage into a Cystic Hygroma of the Neck in an Infant. C. H. Whiteford.
39 Anterior Poliomyelitis Limited to Lower Dorsal Region, and Giving as Its Most Prominent Symptom Paralysis of the Abdominal Muscles on Both Sides. C. P. Lapage.

31. **Chronic Pulmonary Tuberculosis.**—During a term of fourteen months' residence at the Royal Alexander Hospital for Sick Children, Brighton, 954 children came under Allan's notice as in-patients, and of these about 600 were between the ages of 4 and 12. Of that number 2 cases were diagnosed as chronic phthisis, while 6 cases were considered doubtful. As regards the out-patients, of about 3,000 children between the ages of 4 and 14 treated during that period only 4 had chronic phthisis, while about 20 were under observation as doubtful cases.

Australasian Medical Gazette, Sydney

October

40 Gastro-Staxis. G. L. O'Neill and R. S. Skirving.
41 Syphilis in the Ear, Nose and Throat. W. N. Robertson.
42 *Diabetes Insipidus. J. C. Verco.
43 Diagnosis of Diphtheria. A. J. H. Saw.
44 Primary Thrombosis of Pulmonary Arteries: Sudden Death in the Puerperium. H. G. Tymms.
45 Aspects of Radiotherapy in Relation to Bacterial Diseases of the Skin. A. A. Doyle.
46 Excision of the Scapula. R. H. Marten.
47 Penetrating Wound of the Orbit and Brain. C. MacLaurin.
48 Congenital Cystic Elephantiasis. W. W. Giblin.
49 Muckadilla for Obstinate Rheumatism. E. W. K. Scott.
50 Tuberculous Peritonitis. E. H. Binney.

42. **Diabetes Insipidus.**—Verco's case of diabetes insipidus was under observation for 12½ years. The two drugs used consecutively—tincture of valerian, increased to 2 drams four times a day, and codein, increased to a grain four times a day—in a lad 13 years of age, had no appreciable influence over his polyuria. The latter seemed to have a prejudicial effect on his general health, and reduced his weight. The disease would seem not to have been congenital, but to have arisen when he was only 3½ years old, and to have followed an attack of measles, complicated by laryngitis and otitis media, which left him delicate and with a suppurating middle ear. He remained diminutive in stature (his twin brother was nearly 6 feet high and he was only 5 feet 4 inches) and with a high pitched feminine voice, which may be attributed to his complaint possibly; but this did not keep him in a state of infantilism, for his axillary, pubic and facial half were normally developed; nor did it interfere with his fat production, for when seen after it had lasted 21 years he weighed 136½ pounds, while five years before that, when about 21 years of age, he weighed 122 pounds, and when 13 years old he weighed 95½ pounds. His plumpness, therefore, kept pace with his age, and was not restricted. The necessity for holding large quantities of water gradually led to a greatly increased capacity of his bladder, and when first seen, at 13 years of age, it reached to his umbilicus and contained 45 ounces by measurement, and that was only incidental, and not an experiment to determine how much it could possibly contain.

48. **Congenital Cystic Elephantiasis.**—The condition of the fetus in Giblin's case was so unusual as to form a pathologic puzzle. Normal in all parts save right arm, thorax, left upper arm and neck, one found these so distorted by serous pouches that they were almost swollen beyond recognition. The right hand was the same size as the head, viz.: 11½ inches in circumference, and could only be recognized as such by being divided by sulci into five digitations. The thorax was 16 inches in circumference, and the mammary region hung in four pouches. The skin of the affected parts was so distended as to be almost translucent, and the epidermis easily peeled and allowed serum to flow.

Bulletin de l'Académie de Médecine, Paris

November 9, LXXIII, No. 36, pp. 259-282

51 *Conical Uterine Cervix. (Traitement chirurgical d'une cause très fréquente de dysménorrhée et de stérilité.) S. Pozzi.

November 16, No. 37, pp. 283-318

52 *False Cancers and Inflammatory Tumors in the Abdomen. (Faux cancers et tumeurs inflammatoires du ventre.) Le Dentu.
53 *Prophylaxis of Typhoid Fever. E. Delorme.

November 23, pp. 319-334

54 *Diarrheic Gastroenteritis in Infants. (Recherches sur les diarrhées des nourrissons.) E. Metchnikoff.

51. **Conical Cervix as Cause of Dysmenorrhea and Sterility.**—Pozzi refers to an infantile type of the internal genitalia consisting essentially in the conical shape of the cervix with extremely small lumen and exaggerated anteflexion of the uterus, all of which may be encountered in women otherwise well developed and without atrophy of the uterus, although it is more common with other signs of infantilism. Dysmenorrhea is the rule and also sterility. The kinking of the cervix causes stagnation of mucus with consequent inflammation, obstructing the lumen still more. He cuts into the lip of the cervix on each side and then excises a small triangular piece from the center of each of the four raw surfaces made by the

two incisions. He then sutures the mucosa of the lumen to the mucosa on the outer aspect of the cervix, thus suturing the four raw surfaces and leaving the lumen of the cervix widely gaping. In his experience with 54 cases in which he has applied this technic, 14 of the patients have conceived since, and he never has noticed any interference with delivery from the rigidity of the cervix. The operation even seems to promote the further development of the infantile uterus. The only contraindications are when the genitalia are of extreme infantile type and when there are concomitant infectious processes in the adnexa. He calls the operation *stomatoplastic par évidement commissural.*

52. **False Cancers in the Intestine.**—Le Dentu reports a case in which a tumor from inflammation alone presented the features of a cancer of the transverse colon, apparently spreading to the spine. The absence of continuous pain and of acute or chronic obstruction of the bowel suggested its true nature, confirmed by the subsidence of the tumor under absolute repose and a little potassium iodid or tincture of iodin and large cataplasms to the abdomen. A preceding mucomembranous enterocolitis explained the inflammatory process; it had not been accompanied by abdominal pain or fever but had induced pain in the lumbar region diagnosed for a long time as lumbago. The abdominal aorta displayed such marked pulsation at first that an aneurism was suspected, but this subsided as the inflammation died down, and the lumbago also vanished. Le Dentu compares this case with others on record and points out that four types of these pseudocancers may be recognized: 1, that due to a circumscribed interstitial colitis with hypertrophy entailing more or less pronounced stenosis; 2, that due to simple pericolitis with adhesions, not sufficiently severe to form much of an inflammatory tumor; 3, that due to diffuse pericolitis, causing the production of a long tumor, the shape and size recalling the features of the large intestine. In one such case in his experience the ascending colon and the cecum surrounded by inflammatory exudate, constituted a long round mass, the upper end of which was lost behind the liver. As this patient, a young woman, had previously had a pulmonary affection suspicious of tuberculosis, he assumed a tuberculous process in the intestine, but under absolute repose in bed and cataplasms the pseudoneoplasm subsided in a few weeks and has not returned since. 4. The fourth type is the exuberant form of pericolitis. The inflammatory exudate glues into a solid mass the loops of the small intestine, the subperitoneal connective tissue and even the glands in front of the spine, forming a voluminous mass in the midst of which it is impossible to recognize the swollen intestine. The case reported in detail evidently belonged in this category. The products of the inflammation may be absorbed but suppuration is not unusual. The most puzzling cases are those in which the tumor is well defined, of a firm consistency and still movable, or when so many elements are soldered together in it that the whole simulates a malignant process. Tentative application of proper medical measures will save the patient a major operation in some cases. Acute and febrile phenomena may be absent from the history of the case. Before stating that the neoplasm palpated is a cancer, it is well to try a tentative course of absolute bed rest, moist warmth to the abdomen, with antisyphilitic treatment if there is a suspicion of syphilis. Signs of obstruction, pain, vomiting, demand the surgeon. He reviews the various operative measures that have been applied, including Robson's double short-circuiting technic.

53. **Prophylaxis of Typhoid Fever.**—Delorme cites statistics which show that the health of troops in a garrison reflects the conditions in regard to the public health in the towns where they are stationed. It is thus seen that the typhoid mortality is low or has become low recently in most of the cities of France except those in the south. Marseilles, Avignon, Brest and Lunéville have a typhoid mortality of 29.2, 48.8, 28 and 25 per thousand inhabitants, which he ascribes to the contamination of the drinking water. Nice is included in this group.

54. **Proteus Responsible for Diarrhea in Infants.**—Metchnikoff's research and conclusions were mentioned recently in the Paris letter, December 11, page 2017. He found the *Bacillus proteus* answer all the bacteriologic and clinical tests as the causal agent of summer diarrhea in young infants and was able to reproduce the syndrome at will by inoculating suckling rabbits and monkeys with cultures of the proteus or with diarrheic stool from sick infants. In prophylaxis measures must be taken to destroy the proteus which is found so constantly on the surface of articles of food exposed to the air, on the hands, etc. Adults are not made sick by the proteus but can communicate it to infants and Metchnikoff found it in large numbers in the stools of 36 out of 40 infants with gastroenteritis. The greater number of flies in the summer, carrying the proteus from the dejecta of domestic animals, explains the prevalence of summer diarrhea in the less resistant infants, including the breast-fed. The proteus is readily destroyed by desiccation or by dipping grapes, vegetables, etc., in boiling water for a few seconds or singeing the surface of cheese, etc., and by washing the hands with soap and water and also the breast before the infant is allowed to nurse. It is possible that some other microbe in the intestinal tract may favor the proliferation of the proteus.

Presse Médicale, Paris

November 3, XVII, No. 88, pp. 777-784

55 The Mercuric Chlorid and Acetic Acid Test for Bile Pigments in the Stools. (Exploration clinique des voies biliaires et de l'intestin par la réaction du sublimé acétique dans les selles.) H. Triboulet.
56 Pathogenesis of Tabes and of Parasyphilitic Affections in General. A. Sézary.
57 Gauge for Extent of Flexion of Joints. (Compas goniomètre pour la mensuration des angles en clinique.) H. Vennin.

November 6, No. 89, pp. 785-800

58 Sporotrichosis. (Sporotrichose hypodermique gommeuse, ulcéreuse, disséminée: sporotrichose de de Beurmann.) L. Landouzy.
59 Tincture of Iodin in Emergency Treatment of Burns. (La teinture d'iode dans le traitement d'urgence des brulures.) P. Descomps.
60 Serodiagnosis of Cerebrospinal Meningitis. (Réaction de fixation de Bordet-Gengou pour le diagnostic de la méningite cérébro-spinale.) M. Cohen.
61 Intestinal Hemorrhage in Malta Fever. (L'entérorragie dans la fièvre de la Mediterranée.) P. Modinos.
62 Quinin Tetanus. (Tétanos quinique.) M. Rigollet.

November 13, No. 91, pp. 809-816

63 *Gastroenterostomy and Gastric Hypersecretion. L. Meunier.
64 Clinical Dosage of Chlorids in the Urine. A. Martinet.

63. **Gastric Hypersecretion and Gastroenterostomy.**—Meunier has found that gastroenterostomy for painful hypersecretion induces some reduction in the gastric acidity, but no modification in the route of evacuation of the stomach which proceeds as before by way of the pylorus. The main difference in the conditions in the stomach is the presence of comparatively large amounts of intestinal juice. The reflux of intestinal juice through the new opening helps to neutralize the hydrochloric acidity of the stomach content, and by its direct action on the stomach mucosa exerts an inhibiting influence on the secretory glands in the stomach. The combination of these two actions, chemical and physiologic, relieves the patient permanently of his former disturbances. Even if the new opening becomes obstructed in time, the stomach has been given such a long rest that the continued hypersecretion no longer induces the hyperesthesia and spasm responsible for the sensory disturbances in the past.

Semaine Médicale, Paris

November 24, XXIX, No. 47, pp. 553-564

65 *Multiplicity of Symptoms and Lesions of So-called Acute Epidemic Anterior Poliomyelitis. J. Lhermitte.

65. **So-called Anterior Poliomyelitis.**—Lhermitte compares the reports on various epidemics of acute anterior poliomyelitis, calling attention to the fact that the syndromes described do not form a single well-defined morbid entity. As a fact, the reports include a number of various inflammatory affections of the nervous system and meninges, the list including simple or hemorrhagic polioencephalitis, diffuse encephalitis, diffuse myelitis, meningomyelitis, meningo-radiculitis and polyneuritis, all of which have been reported as true anterior poliomyelitis. He is convinced that further study of the lesions of the cerebrospinal axis consecutive to acute meningitis will explain the close connection between the epidemics of acute spinal paralysis in children and adults and the epidemics of cerebrospinal meningitis. The prognosis varies

materially in the different affections listed as anterior poliomyelitis. A paralysis of meningeal origin can be differentiated from the paralysis of anterior poliomyelitis by the meningeal symptoms; lymphocytosis or polynucleosis in the cerebrospinal fluid, severe pain in the limbs, the slower retrogression of the paralysis and the absence of consecutive atrophy of the muscles involved. No one descriptive term can be applied to all these syndromes.

Deutsches Archiv für klinische Medizin, Leipsic

XCVII, Nos. 5-6, pp. 409-620. Last indexed Nov. 13, p. 1699

66 Tension of Muscles in Children and Contracture. (Infantile Muskelspannungen und ihre phylogenetische Bedeutung für die spastischen Kontrakturen.) K. Hasebroek.
67 *Tests of Liver Functioning. (Zur funktionellen Leberdiagnostik.) H. Hohlweg.
68 Empyema and Pyopneumothorax. (Luft-Flüssigkeitsansammlungen im Thorax.) C. Klieneberger.
69 *Diagnostic Importance of Peptid-splitting Ferment in Cancerous Stomach. (Vorkommen eines peptidspaltenden Fermentes im carcinomatösen Mageninhalt.) O. Neubauer and H. Fischer.
70 *Fever in Diabetes. (Beobachtungen am fiebernden Diabetiker.) W. Brasch.
71 *Relations Between Rachitis and Blood-producing Organs. (Die rachitische Megalosplenie: Anaemia pseudoleucaemica infantum.) E. Aschenheim and E. Benjamin.
72 Beat-volume and Work of the Heart. (Ueber Schlagvolumen und Herzarbeit des Menschen. II. Zur Kritik der Plesch-'schen Methode.) A. Müller. (III. Ergebnisse der Untersuchungen an Normalen und in pathologischen Zuständen.) Id. and S. Bondi.
73 Liver Dulness with Abdominal Affections. (Verhalten der Leberdämpfung bei abdominalen Erkrankungen.) Kirchheim.

67. **Tests of Liver Functioning.**—Hohlweg remarks that the more we learn about the functioning of the liver, the greater our amazement at the manifold processes that take place in it. The products of the work of the liver cells are not accessible for direct examination but Glässner has found that with processes destroying the parenchyma of the liver (syphilis, fatty liver, cirrhosis and phosphorus), the amino-acids introduced are more or less modified when eliminated, while with other liver affections (cancer of the liver, catarrhal jaundice, congested liver) no disturbance of the amino-acid metabolism is manifest. He suggests that by this means the functioning capacity of the liver can be estimated, and Hohlweg has obtained corresponding findings, confirming Glässner's statements although by other means. He experimented with levulose and compares his clinical findings with those already reported by others: 100 gm. levulose, dissolved in 300 gm. water was ingested fasting in 41 cases of various liver affections. The tolerance for levulose was reduced most with cirrhosis of the liver, catarrhal jaundice and obstruction of the common bile duct with a stone. A stone in the cystic duct or liver tumor did not entail alimentary levulosuria. The difference in this respect was striking when the bile duct was obstructed by a tumor or a gall-stone. All affections that injure the parenchyma thus reveal the functional disturbance by alimentary levulosuria. On the other hand, the assimilation is scarcely interfered with in case of enlargement of the liver, leucemia and congestion or tumors. These clinical findings were confirmed by the results of experimental research, pathologic conditions in the liver being induced by injections of toluilendiamin, phosphorus or a mixture of chloroform, oil and paraffin.

69. **Diagnostic Importance of Peptid-splitting Ferment in the Stomach Content in Cancer.**—This article states that a ferment is present in the carcinomatous stomach content which splits glycyltryptophan. This ferment is destroyed if hydrochloric acid is present in the proportion of 0.36 per cent. and over. The discovery of this ferment is thus an important aid for differentiation of cancer. Neubauer never encountered this ferment in 26 cases of various non-malignant stomach affections nor in the normal stomach, while it was constantly present in 17 cases of cancer, and in 4 out of 6 cases in which cancer was suspected. The only drawback is that the presence of blood or pancreatic juice annuls the test. In the cancerous stomach digestion proceeds farther than in the normal stomach, probably as the result of the presence of some special autolytic ferment which is lacking in normal conditions. Hence, if the stomach content contains a substance capable of splitting peptids, the assumption is evident that some autolytic ferment must be present. Free tryptophan stains a reddish violet on addition of bromin water while there is no change in tint if the tryptophan is bound. The stomach content is examined for blood and bile, filtered and tested with bromin water for a color reaction. If all these tests are negative, then 10 c.c. of the filtrate is mixed with a little glycyl tryptophan, a layer of toluol poured on top and the glass set in the incubator for twenty-four hours. Then 2 or 3 c.c. taken with a pipette from under the layer of toluol is transferred to a test-tube and a few drops of a 3 per cent. solution of acetic acid are added, after which the fumes from a vial filled with bromin are allowed to flow into the tube until a slight brownish tint becomes evident in the upper part of the tube which is then shaken. The fluid then turns pink in the presence of free tryptophan.

70. **Fever in Diabetics.**—Brasch tabulates the metabolic findings in nine diabetics during a febrile affection. The latter may increase or reduce the glycosuria in diabetics, but the febrile affection itself is of less moment in this respect than the severity of the diabetes.

71. **Relation of Rachitis to the Blood-Forming Organs.**—This communication from Pfaundler's clinic at Munich ascribes to a rachitic primary injury of the bone marrow the condition known as infantile pseudoleucaemic anemia. It does not belong in the group of actual anemias but is merely a high degree of rachitic myelopathy entailing myeloid metaplasia. The disturbance should be called rachitic splenomegaly.

Deutsche medizinische Wochenschrift, Berlin

November 11, XXXV, No. 45, pp. 1953-1984

74 *Serotherapy in Ophthalmology. (Ueber die quantitativen Verhältnisse des Antikörper-Uebertritts in die Cornea bei der passiven Immunisierung; ein Beitrag zur Serumtherapie in der Augenheilkunde.) P. Römer.
75 Further Research on Tsetse Flies and Trypanosomes. Kleine.
76 *Decisive Importance of Reduced Oxygen Tension of the Tissues as a Stimulus to Blood Production. (Ausschlaggebende Bedeutung der verminderten Sauerstoffspannung der Gewebe für die Anregung der Blutbildung.) E. Kuhn and W. Aldenhoven.
77 Physiology and Pharmacology of Magnesium and Calcium. S. J. Meltzer.
78 Apparatus for Compressing Air. (Der Luftkompressor im Krankenhause.) F. Kuhn.
79 *Intermittent Limping. (Kasuistisch-therapeutische Mitteilungen über intermittierendes Hinken.) H. Goldbladt.
80 *Decapsulation of Kidney in Eclampsia. (Nierendekapsulation bei Eklampsie.) Ziemendorff.
81 *Blindness from Adulteration of Medicine with Wood Alcohol. (Toxische Erblindung nach Genuss von verfälschtem Kinderbalsam—Holzgeistvergiftung.) A. Natanson.

74. **Antipneumococcus Serotherapy with Serpiginous Ulcer of the Eye.**—Römer appeals to general practitioners to apply serotherapy at once in cases of beginning *ulcus serpens* as the only means of saving a number of eyes otherwise irretrievably lost. In 16 out of 40 cases in his clinic at Greifswald in the last two years, from 12 to 16 days had elapsed after the injury of the cornea which is generally the cause of this lesion—a slight superficial injury allowing the entrance of the pneumococcus. Extensive clinical and experimental research has shown that pneumococcus serum if used soon after the injury of the cornea is liable to have a very favorable influence on its healing; even a few hours' delay may decide the fate of the eye. He urges the practitioner to make an immediate injection of antipneumococcus serum and send the patient at once to an ophthalmologist. When the ulcer is once developed, serotherapy has much less chance. He then appeals to ophthalmologists to use larger doses of the serum and apply it locally in the form of a powder as well as injecting the serum directly into the cornea and under the conjunctiva.

76. **Deficiency of Oxygen as Stimulant for Blood Production.**—Kuhn cites numerous authors who have shown that a lack of oxygen is a potent stimulus for the production of blood. He shows further that the action of arsenic and other tonics is the result of a deficiency in oxygen, entailed by the destruction of the blood corpuscles by these drugs. He describes a number of experiments on animals which confirm his assumption that the reduced oxygen tension of the tissues is of decisive importance for the production of new blood, and that this applies to all measures which are known to act by increasing the production of blood. Primary lack of oxygen is the simplest and most effectual means of increasing

the production of blood as evidenced in the influence of altitude and of the suction mask which restricts the amount of air inhaled while permitting free expiration.

79. **Intermittent Claudication.**—Goldbladt expresses surprise that this affection and local arteriosclerosis in general have received so little attention from the physico-therapeutic side. The same old routine of iodin internally, light massage and walking exercises is applied over and over again, but he urges the importance of active hyperemia with electric baths, hot air douches and the thermophore, which have given brilliant results in 4 cases in his experience. The application of heat promotes absorption and retrogression of the endarteritis, or parallel or collateral vascular routes may develop under its influence. The main factor in the benefit is the prompt hyperemia and slight perspiration.

80. **Decapsulation of the Kidneys in Eclampsia.**—Ziemendorff regards decapsulation as the promptest and surest method of evacuating the kidneys when they have become impermeable from any cause. They are unable to throw off the toxins that have gathered in them and diuretics have no effect in the severer cases of eclampsia but only aggravate the condition. Decapsulation opens a way for escape of the toxins; the wound should not be closed at once but left open with a drain. In a case reported the eclamptic seizures ceased with the decapsulation and in a few days the albumin in the urine had dropped from 15 to 0.5 per thousand; the patient did not rouse from coma until twenty-four hours after the decapsulation, but then rapidly recovered.

81. **Blindness from Medicine Adulterated with Wood Alcohol.**—Natanson states that 80 cases of blindness or death from wood alcohol are known in Russia and he reports another case of blindness. Senkowitsch has also encountered 5 cases of blindness and 4 fatalities from this cause. The combination of toxic blindness with severe gastrointestinal disturbances confirmed the assumed etiology. The blindness came on the second or fourth day, followed by some recovery of vision for a few days, after which secondary incurable atrophy of the optic nerve gradually developed. In 6 of the cases mentioned the wood alcohol had been used to adulterate aromatic spirit (*Kinderbalsam*), including Natanson's own case. [Since this article was published Natanson's death at Moscow has been reported.—ED.]

Medizinische Klinik, Berlin

November 7, V, No. 45, pp. 1693-1726

82 Anatomic Changes in Salivary Glands with Acute Mercurial Poisoning. (Anatomische Veränderungen der Speicheldrüsen bei akuter Quecksilbervergiftung.) E. Eichhorst.
83 Traumatic Hysteria with Epilepsy. (Beitrag zur Differentialdiagnose der Hysteria und Epilepsie.) E. Schultze. Commenced in No. 44.
84 *Experimental Research on Thrombosis. (Thrombenbildung.) E. Zurhelle.
85 *Venous Thrombosis and Embolism of Pulmonary Artery. L. Aschoff. R. Kretz.
86 Epidemic of Acute Spinal Paralysis. (Die akute spinale Kinderlähmung im rheinischwestfälischen Industriebezirk.) Reckzeh.
87 Surgery of Hip Joint. (Neue Methoden zur Eröffnung des Hüftgelenkes.) K. Lengfellner and F. Frohse.
88 Reflected Sunlight the Curative Factor in the Mountains and at the Seashore. (Identität der Heilfaktoren im Hochgebirge und an der See.) C. Wldmer.
89 Veronal and Epilepsy. Liebl.
90 Bacteriologic Findings in Certain Cases of Dysentery. (Ueber eigenartige bakteriologische Befunde bei Ruhrkranken.) P. Kuhn and F. Wolthe.

84 and 85. **Thrombosis.**—Zurhelle discusses the connection between postoperative thrombosis, infection and depositing of fibrin, his conclusions from much research being that a retarding of the blood stream is the main factor in the production of a thrombus and that the blood-plates pile up mechanically in the more sluggish blood stream. This conglutination of blood-plates is entirely different from coagulation of fibrin, and the latter is not necessary for the formation of a thrombus; when it occurs it is secondary. His experiments show the uselessness of striving to prevent thrombosis by reducing the coagulating property of the blood, as we are unable to act on the blood-plates; all we can do is to prevent the blood stream from becoming sluggish. Aschoff suggests that it may be possible to prevent thrombosis by changing the physical conditions in the circulation, combating any tendency to a slower pulse rate. He does not think that thrombosis is always of infectious origin, but a superposed infection transforms a primary insignificant thrombus into a dangerous thrombophlebitis.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XX, No. 5, pp. 727-918. Last indexed November 20, p. 1785

91 *Tetany in Rabbits. (Tetanie der Kaninchen.) W. Haberfeld and P. Schilder.
92 *Skiagrams of Chronic Joint Disease. (Die chronischen Gelenkerkrankungen im Röntgenbilde mit Ausnahme der Tuberkulose und der Lues.) E. Jacobsohn.
93 *Serum Treatment of Hemophilia. F. Trembur.
94 Primary Cardiospasm after Trauma, with Pear-shaped Enlargement of Esophagus and Suppurative Parotitis. A. Heisler.
95 *Bacteriology of the Blood in Surgical Affections. (Bakteriologische Blutuntersuchungen bei chirurgischen Infektionskrankheiten.) N. Spassokukotzky.
96 *Operative Treatment of Gastric Affections. (Die chirurgische Therapie bei Magenleiden.) T. Kocher.
97 Typhoid and its Relations with the Biliary Passages. (Ueber Typhus abdominalis und seine Beziehungen zu den Gallenwegen.) E. Fraenkel.

91. **Tetany in Rabbits.**—The research reported apparently confirms beyond question that tetany in rabbits is the result of loss of parathyroid functioning. The older animals bear the loss of the parathyroids better than the younger. In some rabbits the tetany did not develop after removal of the four main parathyroid bodies, but this was due to the existence of accessory parathyroids in the thymus and tetany followed inevitably the removal of the thymus in these animals. The vicarious hypertrophy of the parathyroids is also further evidence of the importance of the parathyroids in the vital processes.

92. **Roentgen Findings in Chronic Joint Affections.**—Tuberculous and syphilitic joint processes are not included in this study but all other chronic joint affections are reviewed and the importance of Roentgen examination as an aid in differentiation and prognosis is emphasized. The findings are classified and examples are given of skiagrams of focal processes, softening of the bone, periostitis, proliferative and degenerative processes, atrophy and free bodies in the joints, the points of difference between chronic arthritis with hypertrophy and that with atrophy being noted and the lesions compared with the clinical picture. The chronic rheumatic joint affection affecting only one or a few joints is not progressive, while that affecting a number of joints has a markedly progressive course. Arthritis with atrophy includes the chronic infectious processes and secondary rheumatic, the gonorrheal, gout, certain forms of senile arthritis and the chronic scarlatinal, typhoid or influenzal arthritis. The arthritis with hypertrophy includes the neuropathic joint affections, the tabetic and syringomyelic. The article fills 57 pages and is accompanied by 21 illustrations in the text and 15 plate skiagrams.

93. **Serotherapy in Hemophilia.**—Trembur's patient was a girl of about 13 who was known to have been a "bleeder" since the age of 5, although otherwise in good health. There was no history of anything of the kind previously in the family. The child had been in the hospital two or three times on account of excessive hemorrhages which yielded after tamponing and injection of gelatin. In February, 1909, there was menacing hemorrhage from the mouth, left ear, throat and gums and the breath had a fetid odor; temperature and urine were normal; reds 3,280,000 and whites 8,437, with 50 per cent. hemoglobin. It was noticed that the fetid odor of the breath always preceded and accompanied a severe hemorrhage. Epistaxis a day or two later required tamponing anew, although the child was lying quietly in bed. About 5 c.c. of sheep's blood serum was then injected into the left upper arm and four hours afterward the epistaxis was arrested; it recurred again two days later, but ceased as the nostrils were tamponed with gauze dipped in sheep serum. The bleeding from the gums was also arrested in the same way with local serum applications but a severe hemorrhage from both ears occurred in the night. At once 10 c.c. of sheep serum was injected into each thigh, the injections repeated about two weeks later, as there was still a tendency to slight hemorrhages, and 19 c.c. were injected into the abdomen three weeks later. The child was thus injected with a total of 106 c.c. between Feb. 22 and May 1, 1909, when she left the hospital in the best of health, having gained about 20 pounds.

Trembur regards the effect of the serum in this case as quite brilliant. A marked leucocytosis followed the injections each time, and this, by increasing the number of ferment-bearing cells, may be the explanation of the benefit from this form of serum treatment of hemophilia. Jochmann has called attention to the coagulation-promoting action of the proteolytic leucocyte ferment. No precipitins for sheep or rabbit serum could be discovered in the child's blood during or after the serum injections. In conclusion Trembur suggests that druggists should keep standardized normal sheep serum on hand for treatment of hemorrhage. The literature on the subject of serum treatment of hemophilia is reviewed. Trembur is inclined to class the case reported as one of hereditary hemophilia although not inherited in this case—there must always be a first generation before it can be inherited, and his little patient evidently was the first to introduce the hemophilic tendency into the family.

95. **Bacteriology of Surgical Affections.**—This article from the St. Petersburg Obuchoff hospital reports the results of bacteriologic examination in 81 cases of osteomyelitis, erysipelas, septic lesions or surgical affections of various kinds commencing with a local process. Acute osteomyelitis was found to be a general infection with localization of the process in the bone marrow; it was always accompanied by bacteriemia and frequently followed by signs of metastatic sepsis. The streptococcus was found in each of the 23 cases. Erysipelas is a general infection of the organism with localization in the skin and subcutaneous tissue, with bacteriemia at first, soon subsiding. Streptococci were found in all but 2 of the 29 cases in this group, staphylococci in the others. The staphylococcus affections were distinguished by metastasis while the streptococcus were free from it, but the mortality of both was about the same.

96. **Operative Treatment of Stomach Affections.**—Kocher has resected the stomach for carcinoma in 140 cases and here discusses the outcome. Permanent recovery is known in 30 cases and he epitomizes these cases to show the points useful in prognosis. In all the tumor was at the pylorus and readily movable, although a permanent cure was realized also in a few cases in which there were extensive adhesions to neighboring organs. In 2 the tumor was at some distance from the pylorus; in none was it near the cardia. The cancer was of the cylinder-cell type in all but one case in which there was scirrhus. The most important lesson learned from these permanently cured cases, he says, is the superiority of the Kocher technic, closing the stomach, with posterior gastroduodenostomy. He reviews the indications for operative intervention, regarding retention and stagnation as calling for operative removal of the mechanical obstruction. It must be borne in mind that prolonged ulceration at the pylorus may lead to stenosis and adhesions requiring an operation even after an apparent medical cure. For cases in which it is not necessary to remove the ulcer, he advocates inferior longitudinal antrojejunostomy, isoperistaltic, with a large opening, applying Hacker's technic with a short loop. The Wölfler and Roux Y methods should be restricted to cases of anacidity and lesions forbidding union at the proper point, that is, at the greater curvature of the pyloric part. [Kocher was the recipient of the Nobel prize in medicine recently, as mentioned December 18, page 2110.—ED.]

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

November, XXX, No. 5, pp. 543-674

98 Obstetric Operations to Aid Delivery with Undilated Os. (Die geburtshülflichen Hülfsoperationen bei uneröffnetem Muttermund.) J. Pfannenstiel.

99 *Thrombosis and Embolism in Connection with Allowing Patients to Get up early after a Gynecologic Operation or Childbirth. O. Hoehne.

100 Two Cases of Carcinoma of Fallopian Tube. S. Boxer.

101 *Vaginal Myomotomy. W. Thorn.

102 Indications for and Results of Martin's Salpingostomy. (Was leistet die Martinsche Salpingo-Stomatoplastik?) E. Kehrer.

103 *Means of Facilitating Examination of the Abdomen. (Zwei Erleichterungsmittel der kombinierten Untersuchung.) H. Sellheim.

99. **Postoperative Thrombosis.**—Hoehne writes from the Kiel gynecologic clinic to emphasize the advantages of allowing women to get up early after operations and deliveries, but he presents evidence to show that this is not able to prevent development of thrombosis. He refers to a number of published statistics which show that one parturient in every 200 develops thrombosis. Embolism occurs once in 2,000, and fatal embolism once in 4,000 lying-in cases. No thrombosis was observed in the first 100 parturients at his clinic allowed to get up early, but a fatal case of embolism of the lungs has been observed, although the number has not yet reached 1,000. He has also encountered 3 cases of thrombosis with embolism among 22 women with eclampsia during these eighteen months. Allowing the women to get up early seems to afford no definite protection against thrombosis; it only eliminates one factor, the retarding of the blood stream. The data indicate that the coagulation of the blood is a process due to the action of a ferment, and consequently the composition of the blood should be known. If the blood is seen to possess abnormal tendency to coagulation, rational prophylaxis of thrombosis must include measures to reduce the coagulating properties of the blood. The Wright method of determining the coagulating power seems simple and reliable; if abnormally high, a substance should be introduced into the circulation to check the tendency to coagulation (citric acid, leech extract, etc.). By this means we institute true, rational prophylaxis and allowing the patients to get up early would then prove an important aid. If coagulation has occurred, ligation of the thrombosed vessels should be considered and in case of embolism, the operative removal of the embolus should be attempted. He adds that as the aid of a surgeon cannot be waited for in these desperate cases, the practitioner must learn the technic and eventually undertake the operation which offers the only chance for rescue. It has been done once already with complete success.

101. **Vaginal Myomotomy.**—Thorn has enucleated the myoma by way of the vagina in 79 cases without a fatality, but he has had pulmonary embolism the sixteenth and twenty-first day in 2 out of 175 cases of vaginal hysterectomy. Another patient died of sepsis, the myoma suppurating. In this case there was also chronic nephritis. The mortality was 1.18 per cent. in 254 vaginal operations. In 9 cases complications rendered it necessary to conclude the operation with a laparotomy. In 12 other cases a second myoma was overlooked but this was remedied by a second operation. He is an advocate of hysterectomy of the myomatous uterus as this alone cures the patient with a single operation, and the myomatous uterus offers little prospects of a normal pregnancy.

103. **Improved Technic for Examining the Abdomen.**—Sellheim calls attention to the great advantage to be obtained by inducing complete relaxation of the abdominal wall, such as follows evacuation of the distended bladder. Artificial distention and spontaneous voiding of the contents of the bladder does not insure this effect. The woman must retain her urine as long as possible, and, just before the examination, it should be drawn with a catheter. This sudden termination of the tension of the walls permits a very useful relaxation. Another way to accomplish the same result is by having the woman lift the buttocks from the table on which she is lying; this effort is usually followed by relaxation of the abdominal muscles, the fatigue following the exertion relaxing the muscles.

Münchener medizinische Wochenschrift

November 9, LVI, No. 45, pp. 2297-2352

104 *Serodiagnosis of Syphilis. (Praktische Bedeutung der Wassermann-A. Neisser-Bruckschen Reaktion.) A. Jesionek and Melrowsky.

105 Bacteriologic Study of the Blood in Mastoiditis. (Ergebnisse der vergleichenden bakteriologischen Blutuntersuchungen bei Warzenfortsatzentzündungen.) E. Leutert.

106 Post-mortem Pigment Production. (Ueber postmortale Pigmentbildung.) H. Königstein.

107 Systematic Enlargement of the Glands with Rubeola. (Systematische Lymphdrüsenschwellungen bei RÖteln.) F. Hamburger and O. Schey.

108 Serodiagnosis in Tuberculosis. (Zur Frage der Komplementbindungsreaktion bei Tuberkulose.) H. Koch.

109 Latent Occurrence of Granular Form of Tubercle Bacillus. (Latentes Vorkommen der Muchschen Form des Tuberkelbazillus.) P. Wolff.

110 *Deep Roentgen Treatment. (Zur Rontgentiefentherapie mit Massendosen.) A. Köhler.

111 Splenomegaly with Cirrhosis of the Liver: Banti's Disease. (Zur Kenntnis der Bantischen Krankheit.) A. Müller.

112 Syphilis in the Tropics. (Tropensyphilis.) M. Seiffert.

113 Quinin Fatality. (Chinin-Tod.) G. Baermann.

114 The Nasal Septum Best Point for Drawing Blood for Serologic Tests. (Die Schleimhaut der Nasenscheidewand, eine besonders geeignete Stelle für die Blutentnahme zu der Wassermannschen Reaktion und zu andern serologischen Untersuchungenszwecken.) O. Muck.
115 Simulation of Hematemesis. (Erzeugung einer schweren Hämatemese durch Läsion der Nasenscheidewand.) Rücker.

104. **Serodiagnosis of Syphilis.**—Jesionek reports the application of the Wassermann test to 1,060 patients, including 110 in whom syphilis could be absolutely excluded. A positive reaction was obtained only once in this last group, and this was in a moribund child. The Wassermann test is a very delicate index of syphilis; negative findings in the later stages should be regarded as favorable signs and every effort should be made in case of a positive response to transform it into the negative. In the early stages of syphilis it is of very slight value for the prognosis. A positive reaction should be regarded as merely one symptom of the disease.

110. **Safe Roentgen Exposures with Large Dosage.**—Köhler has found that the interposition of wire netting is of great importance in preventing injury from Roentgen treatment. The netting is applied close to the skin, merely a thin filter interposed, and the Roentgen tube used should have a focus from four to eight times the usual size. The skin under the wires of the netting escapes the action of the rays, and the little circles or squares of the interstices alone feel their action. Applying 10 full erythem doses, each little square of dermatitis is separated by a narrow stripe of normal tissue from the similar squares on all sides and from this network of stripes of normal tissue healing proceeds rapidly so that the whole area soon heals over. He has found netting with meshes of 2.5 mm., made of iron wire 1 mm. in diameter, best adapted for the purpose; this netting does not yield and pressure can be exerted on the skin, which has a useful effect in checking the metabolic processes during the exposures. After the exposure the part is protected with adhesive plaster and kept sterile until it heals. By this netting method twenty times the usual dose of the rays can be applied with safety, he declares. The part can be exposed from three or four directions, if necessary. A sarcoma of the femur might be given forty times the present dosage in this way by exposures on four different sides. He urges the application of this technic in inoperable cancer as the advantages of enormous dosage, brief exposures, simple technic and combination with filtering and with compression of the skin are counterbalanced only by the danger of destruction of the protected parts between the meshes by infection. This possibility can be warded off by aseptic measures.

Therapeutische Monatshefte, Berlin

November, XXIII, No. 11, pp. 567-622

116 *Prolapse Operations. F. Schauta.
117 Limitations of Local Anesthesia in Dentistry. (Grenzen der Injektionsanästhesie in der zahnärztlichen Chirurgie.) D. Frohmann.
118 *Campaign Against Cretinism in Austria. (Bekämpfung des Kretinismus in Oesterreich.) L. Sofer.
119 *Tuberculin Treatment of Pulmonary Tuberculosis. (Behandlung der Lungentuberkulose nach Robert Koch.) E. Löwenstein.

116. **Operations for Prolapse.**—Schauta states that his technic for operative correction of prolapse has been applied in 110 cases; in 93 the later history has been known for several years. A complete cure was realized in 46, that is, in nearly 78 per cent., with no interference with menstruation. In the 13 other cases there is still some trouble but always from lack of proper restoration of the pelvic floor. He gives the details of his technic anew and writes this article to call attention to the importance of suturing the bladder peritoneum as low down on the cervix as possible and taking several stitches. The lack of this was responsible for the recurrence in one case in which the uterus had twisted half way around, bringing the bladder behind instead of on top of it. The uterus is interposed between the bladder and vagina and the vagina sutured to close the incision completely; the bladder then rests on top of the uterus. The tendency to prolapse is corrected much better by this technic than by hysterectomy as this leaves the genital hiatus still gaping.

118. **Campaign Against Endemic Cretinism in Austria.**—Sofer states that there are known to be 17,286 cretins in Austria, about 64 to each 100,000 inhabitants, and 1,011 have been systematically kept under thyroid treatment, an official campaign having been instituted in 1907, as already mentioned in THE JOURNAL, after two years of preliminary study of the subject. The cretins are given the thyroid tablets to use at home, and 37 official inspecting and distributing stations have been organized for the purpose. Certain regions where there were many cretins fifty years ago seem to be free from the tendency now, while others formerly free from it now have many examples. Hochsinger regards congenital myxedema as observed in Vienna the analogue of cretinism in mountainous districts, and in both rapid improvement is liable to follow thyroid treatment. [Italy has also recently taken steps to organize a similar official campaign against cretinism.—ED.]

119. **Tuberculin Treatment of Tuberculosis.**—Löwenstein reviews the results obtained at the Beelitz sanatorium with tuberculin treatment in 300 cases of open pulmonary tuberculosis. He comments on the discovery of the same tuberculin-neutralizing substances in the serum of patients spontaneously recovering and in those being treated with "old" tuberculin. He found them pronounced in 5 out of 35 patients examined, and the disease progressed rapidly to spontaneous recovery, in this group of 5. These findings confirm the specificity of the reaction and the radical basis for tuberculin treatment. He advocates it in every case in which the physician thinks improvement is possible. In an experience with 1,000 cases he has never observed a dangerous hemorrhage which could be ascribed to the influence of a preceding injection of tuberculin. The sole contraindications to tuberculin treatment are persisting headache, suspicious of localization of the infection in the central nervous system; nephritis, unless of tuberculous origin; diabetes; epilepsy, and pregnancy. He used to exclude also cases of mitral insufficiency but no longer regards this as necessary. In regard to dosage he prefers to commence with 0.0002 gm., being convinced that smaller doses are liable to induce anaphylaxis. The main point is to avoid introducing new toxins before the effect of the previous toxin has been thrown off. The tuberculin treatment is more qualitative than quantitative. In case of a strong general reaction with focal phenomena—increased expectoration and local reaction in the larynx—the organism must be given time for the phenomena of reaction to die down. Not until after the diseased parts of the tissue have been thrown off can the production of connective tissue proceed satisfactorily. Thus after a reaction of 102.2 F. he tranquilly waits for 14 or 18 days, and after a milder reaction for 7 or 10. During the second phase of immunization with doses over 0.1 gm. the intervals should be at least 10 days. He makes it a principle not to reduce the dose after the reaction, but increases it more or less according to the intensity of the reaction and terminates the course when the patient can stand 0.5 gm. without reaction. Koch's "bacillus emulsion" is given instead of "old" tuberculin when it is necessary to avoid much general or local reaction.

Wiener klinische Wochenschrift, Vienna

November 18, XXII, No. 46, pp. 1585-1622

120 *Roentgen Treatment of Goiter. (Zur Behandlung des Kropfes mit Röntgenstrahlen.) A. v. Eiselsberg.
121 Iodin-Adrenalin Reaction in the Urine. (Neue Reaktion im Harn.) H. Schur.
122 Respiratory Disturbances Originating in the Heart. (Zur Lehre von den kardialen Atemstörungen.) L. Hofbauer.
123 *Treatment of Paralysis by Plastic Operations on Nerves. (Fortschritte auf dem Gebiete der Chirurgie der peripheren Nerven.) H. Spitzy.
124 Recurrence of Infectious Diseases. (Wiederholte Erkrankungen an Infektionskrankheiten.) J. Widowitz.
125 Apoplexy of the Spinal Cord. (Zur Kenntnis der Hämatomyelie.) C. Loebbecke.
126 *Treatment of Certain Cardiac Neuroses. (Zur Erkenntnis gewisser Herzneurosen.) C. Kraus.

120. **Roentgen Treatment of Goiter.**—During the last year v. Eiselsberg has encountered 3 cases of goiter with extensive adhesions in front to the deep muscles, rendering operative measures extremely difficult. He has never observed anything of the kind in the 753 other goiters he has removed since 1901, and in these 3 cases a course of Roentgen exposures had been given before operative treatment was instituted. The goiter was of the exophthalmic type in 2 of the cases. He asserts that he has never witnessed any pronounced benefit from Roentgen treatment of goiter while he has observed

injury from it and consequently he does not recommend it to his patients. Surgical measures are giving such favorable results in exophthalmic goiter now, he says, that the decision to operate should be made earlier.

123. **Progress in Nerve Surgery.**—Spitzy reports some cases in which a plastic operation restored comparatively normal functioning after spastic paralysis. The best results are obtained with spastic paralysis of the upper extremity. The main point in treatment of flaccid paralysis by a plastic operation on the nerves is early intervention. He gives some illustrations showing the fine functional result one year after partial central implantation of the tibial into the peroneal nerves and of the median into the radial. His experience with 35 cases has suggested the indications for the technic for conditions in which the usual methods fail to relieve.

Zentralblatt für Chirurgie, Leipsic

November 13, XXXVI, No. 46, pp. 1569-1600

127 Aseptic Catgut. (Zur Catgutfrage.) F. Kuhn.

November 20, No. 47, pp. 1601-1640

128 *Differential Pressure Procedure for Inducing Local Anemia in Skull Surgery. (Versuche über künstliche Blutleere bei Schädeloperationen.) F. Sauerbruch.

128. **Negative Pressure for Hemostasis in Operations on the Skull.**—Sauerbruch reports the application of his pneumatic cabinet to aid in expelling the blood from the field of operation in brain and skull surgery. The head of the patient is outside the cabinet while negative pressure inside the cabinet, acting on the trunk, induces aspiration of the venous blood from the head which is under ordinary atmospheric pressure outside. His experiments on 62 animals showed the feasibility of the method and its prompt action. Under the reduced atmospheric pressure the thorax enlarges and the venous blood is aspirated into the right heart; the breathing proceeds regularly except that expiration is a little forced and the heart action continued apparently unmodified. The vessels throughout the body also become enlarged under the negative pressure, aspirating still more blood from the head; but simple pressure on the abdominal vessels suffices to send blood back into the head. No injurious by-effects were noted in any of the experiments. The aim is to aspirate the venous blood without modifying the arterial circulation in the head, and the amount of negative pressure is regulated to correspond; a reduction of 20 mm. mercury answered the purpose for the animals. With a reduction of 30 or 40 mm. it proved possible to aspirate the blood so as to blanch completely the central portion of the optic papilla. He warns that great caution is necessary in applying this method to man, but states that in the single clinical case in which it has been used a negative pressure of 16 or 18 mm. mercury emptied the veins for bloodless excision of a carcinoma in the orbit. He adds that a small box to fit over the trunk and chest and permit slight negative pressure would answer the desired purpose, dispensing with the complicated pneumatic cabinet.

Riforma Medica, Naples

November 8, XXV, No. 45, pp. 1233-1260

129 *Experimental Research on Retention, Localization and Fixation of Quinin in Various Organs. (Chinina nei diversi organi.) D. De Sandro.

130 *Anaphylaxis in Diagnosis of Human Tuberculosis. (L'anafilassi come mezzo diagnostico della tuberculosi umana.) V. Caraffa.

129. **Localization of Quinin in the Organs.**—De Sandro reports experimental research which shows that the quinin finally makes its way to the spleen where it remains and where it exerts the greatest pharmacologic action. When administered by the mouth, the quinin has to traverse the liver before it reaches the spleen, and consequently the action is more rapid and pronounced when the drug is injected subcutaneously or by other routes that bring it more directly to the spleen.

130. **Anaphylaxis in Diagnosis of Tuberculosis.**—Caraffa's clinical and experimental experiences have confirmed the diagnostic importance of the phenomena of anaphylaxis as determined by Rosenau and others. He induced the phenomena in sensitized rabbits both with tuberculous blood serum and effusion and with tuberculin. No reaction was obtained with serum from the non-tuberculous.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

SOME SCIENTIFIC CONCLUSIONS CONCERNING THE ALCOHOLIC PROBLEM AND ITS PRACTICAL RELATIONS TO LIFE. Papers read at the Semiannual Meeting of The American Society for the Study of Alcohol and other Drug Narcotics, at Washington, D. C., March, 1909. Sixty-first Congress, 1st Session, Senate Document No. 48. Presented by Mr. Gallinger. Paper. Pp. 179. Washington: Government Printing Office, 1909.

VISITING NURSING IN THE UNITED STATES. Containing a Directory of the Organizations Employing Trained Visiting Nurses, with Chapters on the Principles, Organization and Methods of Administration of such Work. By Ysabella Waters, Henry Street (Nurses') Settlement. Cloth. Pp. 367. Price, $1.25. New York: Charities Publication Committee, 105 East Twenty-second Street.

THE PREVENTION OF INDUSTRIAL ACCIDENTS. No. 1—General Pamphlet. Prepared by Frank E. Law, M.E., and W. Newell, A.B., M.E., of the Staff of the Fidelity and Casualty Company of New York. Paper. Pp. 194, with illustrations. Price, 25 cents. New York: Fidelity and Casualty Co., 97 Cedar St., 1909.

PULMONARY TUBERCULOSIS AND SANATORIUM TREATMENT. By C. Muthu, M.D., M.R.C.S., L.R.C.P. Associate of King's College, London. Cloth. Pp. 201, with illustrations. Price, 3 shillings 6 pence net. London: Baillière, Tindall and Cox, 8 Henrietta Street, Covent Garden, London, 1910.

THE PREVENTION AND TREATMENT OF ABORTION. By Frederick J. Taussig, A.B., M.D., Lecturer in Gynecology, Medical Department, Washington University. Cloth. Pp. 179, with 59 illustrations. Price, $2. St. Louis: C. V. Mosby Co., 1910.

THE ORIGIN AND PREVALENCE OF TYPHOID FEVER IN THE DISTRICT OF COLUMBIA. Report No. 3, 1908. By M. J. Rosenau, L. L. Lumsden and Joseph H. Kastle. Paper. Pp. 160. Washington: Government Printing Office, 1909.

THE PHYSICIAN'S POCKET ACCOUNT BOOK. By J. J. Taylor, M.D. Flexible leather, 24 pages of practical instructions for physicians, 216 pages of accounts. Price, $1. Philadelphia: The Medical Council, 4105 Walnut Street.

A PRACTICAL TREATISE ON OPHTHALMOLOGY. By L. Webster Fox, M.D., LL.D., Professor of Ophthalmology in the Medico-Chirurgical College. Cloth. Pp. 807, with illustrations. Price, $4. New York: D. Appleton & Co., 1910.

MAZDAZNAN ENCYCLOPEDIA OF DIETETICS AND HOME COOK BOOK. Cooked and Uncooked Foods. What to Eat and How to Eat it. Fifth Edition. Price, $1.25. Pp. 230. Chicago: Mazdaznan Associates of God, 1909.

ST. LUKE'S HOSPITAL MEDICAL AND SURGICAL REPORTS. Edited for the Medical Board by Austin W. Hollis, M.D. Volume I, for 1908 and 1909. Paper. Pp. 225. New York City.

REPORT OF THE SURGEON-GENERAL U. S. ARMY TO THE SECRETARY OF WAR. 1909. Washington Government Printing Office. Paper. Pp. 215.

New Patents

Patents of interest to physicians recently granted:

935094. Closure for atomizer-bottles or the like. A. and T. A. De Vilbiss, Toledo, Ohio.
935124. Spray-nozzle. P. A. Myers, Ashland, Ohio.
935542. Treating sodium peroxid. D. E. Parker, Niagara Falls, N. Y.
935227. Medical irrigator. H. H. Pfeifer and F. M. Towles, Indianapolis.
935056. Stretcher. F. C. Rheubottom and R. B. Rayner, Union City, Mich.
935272. Anatomical developing and adjusting machine. D. W. Riesland, Duluth, Minn.
935418. Producing magnesium carbonate. G. Sisson, Newcastle-on-Tyne, England.
935832. Ventilator and medicament or perfume container for hats. H. D. Barnes, Uniontown, Pa.
935777. Truss. W. W. Clindinin, Chicago.
935746. Massage vibrator. E. Fahsbender, Chicago.
936107. Mechanism for elevating invalids. R. L. Floyd, Staunton, Va.
936131. Dental or surgical chair. G. Holtz, Gouldsboro, Pa.
935796. Production of magnesium. F. von Kugelgen, Holcomb Rock, Va., and G. O. Seward, East Orange, N. J.
935858. Apparatus for carbonating and dispensing beverages. L. C. Paris and T. Millward, San Francisco.
935815. Preparing zinc formaldehyde sulfoxylate, F. Rademacher, Prague-Karolinenthal, Austria-Hungary.
936062. Closure for bottles. W. R. Warner, Vergennes, Vt.
936205. Hypodermic syringe. P. B. Woodruff, Springfield, Tenn.
936846. Window tent. J. G. Allen, Peoria, Ill.
936752. Abdominal support. J. S. Allred, Troy, Ala.
936434. Bust-developer. J. G. Eganhouse, Houston, Tex.
936537. Spraying nozzle. A. B. Hull, Gasport, N. Y.
937029. Means for hypodermic medication. B. G. Strong, Reading, Mich.
936499. Aseptic deflector lamp. G. C. Werner, Brooklyn.
937354. Apparatus for setting the fractured bones of the leg. W. Amos, Providence, R. I.
937292. Vaginal syringe. C. S. Eichholtz, Los Angeles, Cal.
937596. Headache appliance. C. Gray and O. B. Hitchcock, Horton, Kan.
937210. Preparing potable waters. J. T. Harris, New York.
937311. Vaginal syringe. C. P. Leyner, Boston.
937327. Pasteurizer. L. S. Pfouts, Canton, Ohio.
937478. Material for surgical splints. S. C. Sims, Sterling, Ill.
937480. Invalid's table. F. A. Smith and D. L. O'Brien, San Francisco.